

# THE IRON AGE.

THURSDAY, JANUARY 11, 1900.

## The Most Perfect Machine Shop.\*—II. Building No. 16 of the Schenectady Works of the General Electric Company.

BY S. D. V. BURR

### The Helper Eliminated.

From what we said in the previous article the statement will be appreciated that the helper is conspicuous by his entire absence. It is certainly unusual in a single

himself. The labor saving devices are complete, ranging from the little portable crane or hoist to the immense traveling cranes, so that the power required is graduated to the requirements. An equipment of this character must result in an increased output at a decreased cost, since it does away with the unproductive labor item. The interest charge on this outlay would far more than offset the interest on the cost of installation, the cost of operation, and the cost of maintenance of the devices here provided.

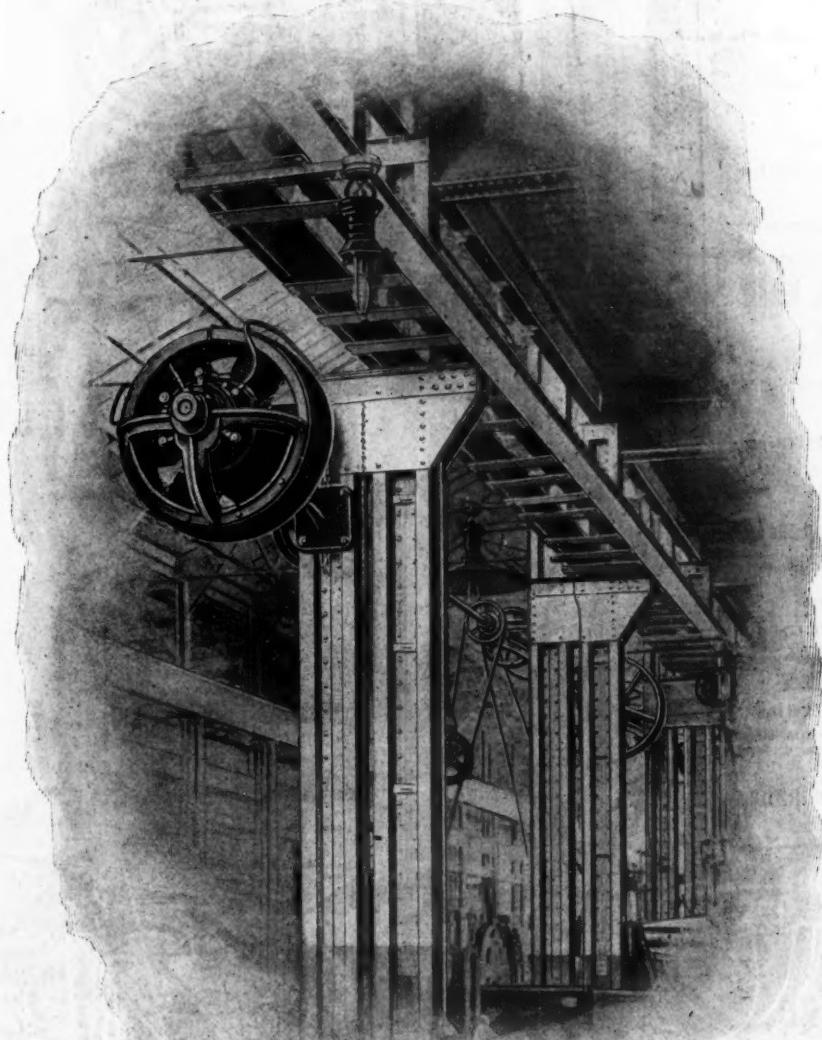


Fig. 12.—Electric Motor Mounted on End of Shaft.

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shop employing seven or eight hundred men to find not even a trace of a man whose sole function is to lift or push something. Appliances are provided in every case for doing this work mechanically, and it is no exaggeration to say that a mechanic need not lift a weight of 25 pounds from the floor unless he desires to do so. There are contrivances provided for doing this work for him and for doing it quicker and better than he could do it

\*See *The Iron Age*, January 4, 1900.

### The Transmission of Power.

The short lines of shafting furnished for the groups of small tools are driven by electric motors mounted upon the ends of the shafts, as shown in Figs. 12 and 14. These motors are carried by brackets secured to the columns of the building. From these lines of shafting power is transmitted through suitable countershafts to the several tools. In some cases, as in Fig. 16, the motor is placed upon the floor alongside the machine to

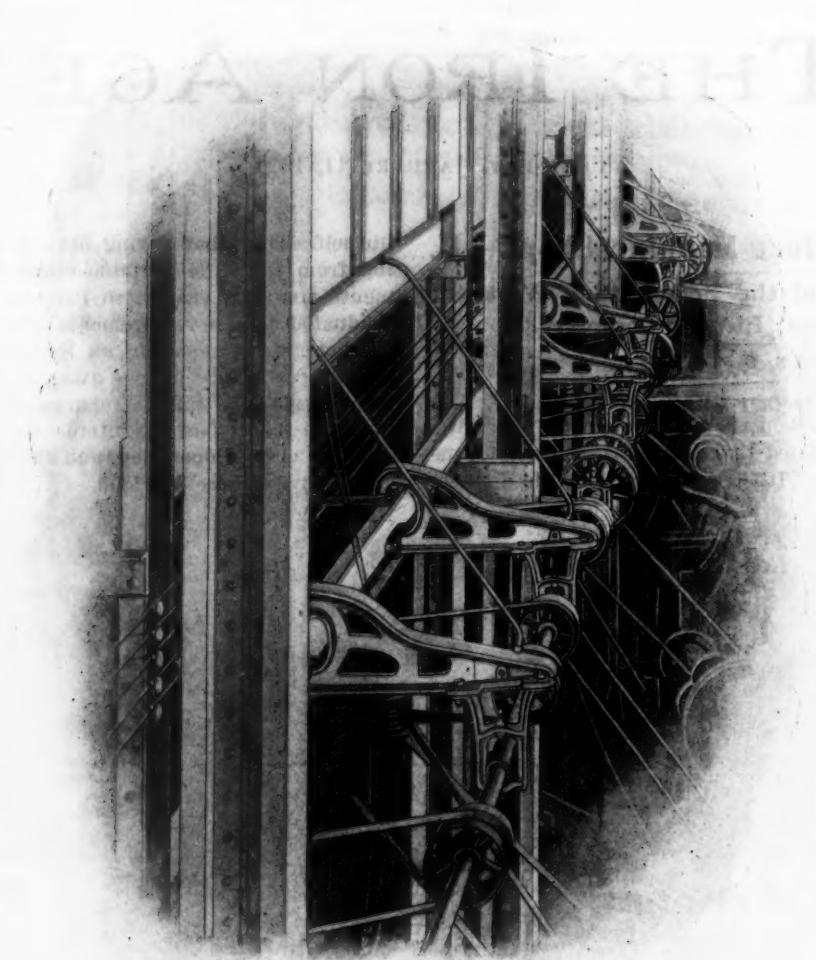


Fig. 13.—View of Opposite End of Shaft, Fig. 12, Showing Bracket Construction.

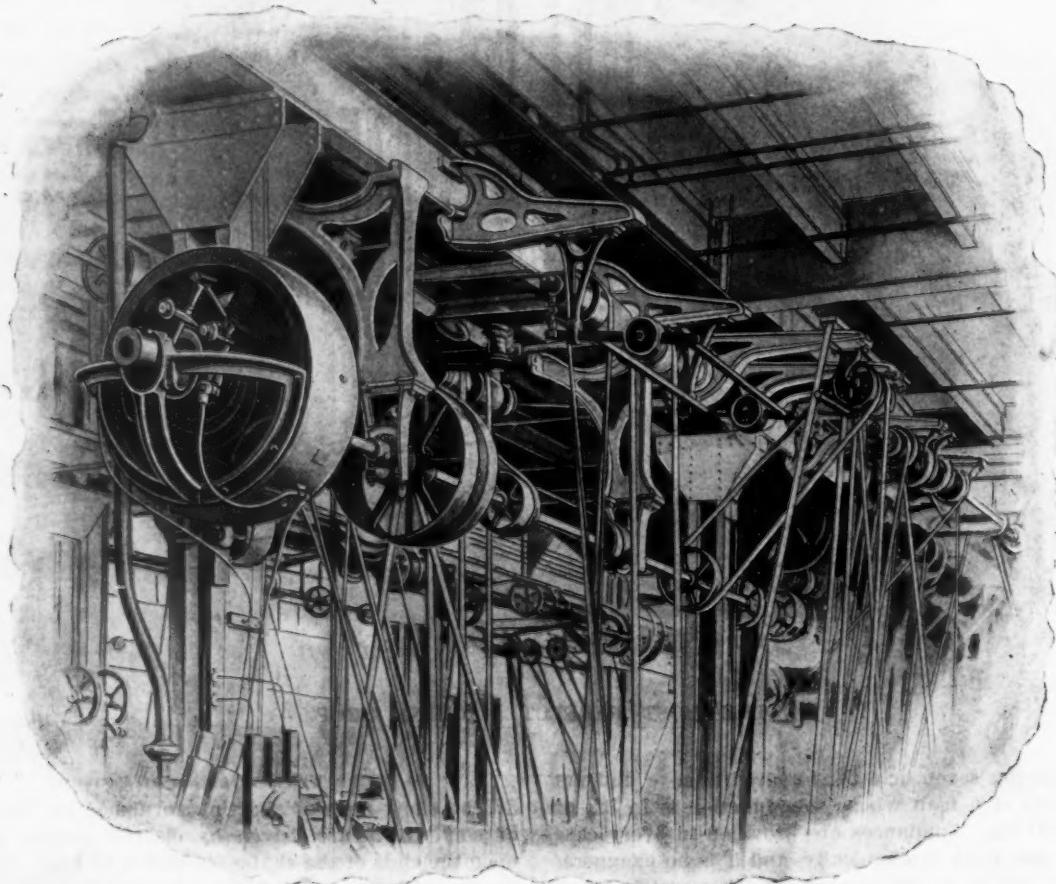


Fig. 14.—Motor on End of Shaft Shaft Brackets and Hangers on Girder.

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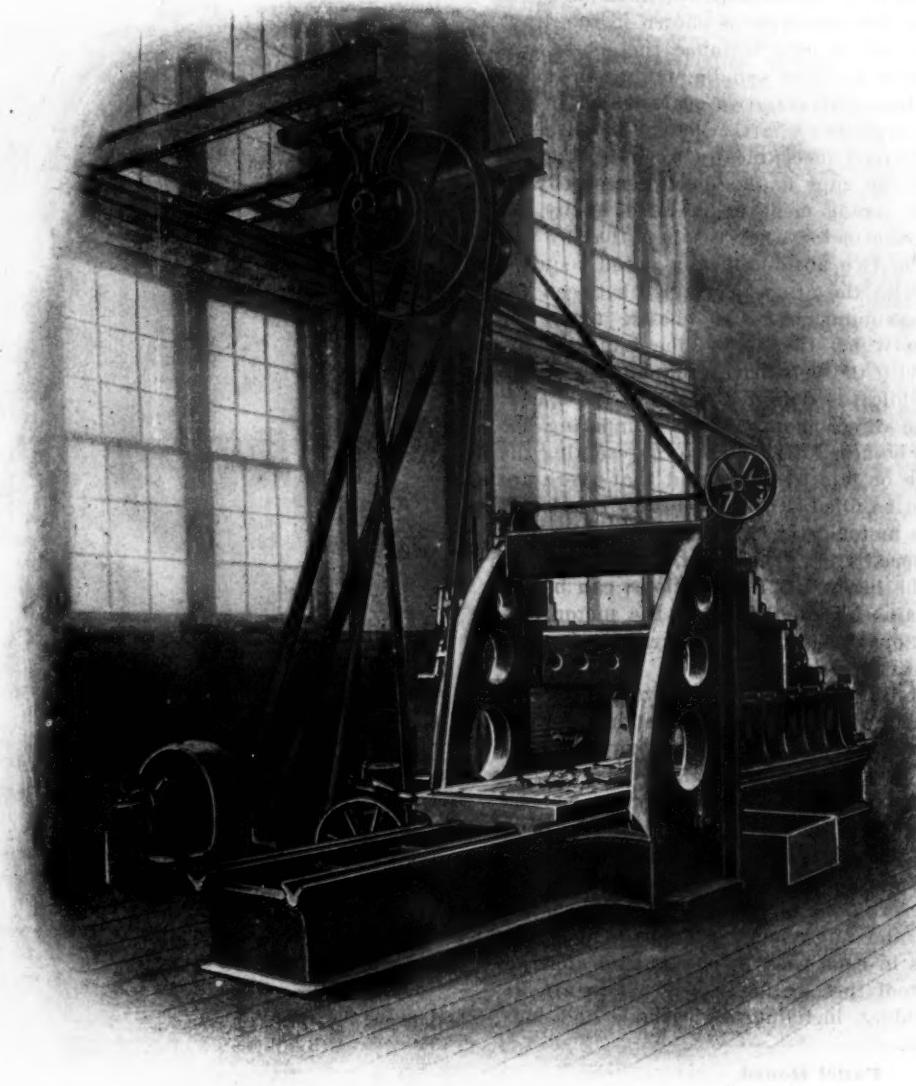
be driven and belted to an overhead counter. This is an isolated case, and one in which there was no other solution of the problem; in other words, the counter was a necessary evil. In this instance the countershaft is bolted to the under part of one of the girders.

An entirely different arrangement is that shown in the planer, Fig. 15. Here the counter is carried at the end of a pair of I-beams projecting from the wall of the building and held by two suspender rods. This particular method was required by the location of the tool and the fact that there was no overhead work to which a countershaft bracket could be secured.

the free travel of the crane. In this case the brackets are formed to fit against the lower flange of the girder and to be bolted through the web of the girder. The hangers grip the lower flange of the girder from which they are suspended. Provision is made in all of the brackets for the adjustment in or out of the bearings, and both brackets and hangers can be placed where desired along the girder.

#### The Electric Motors.

As has been stated, electric motors are used throughout, individual motors being placed upon the large ma-



*Fig. 15.—Driving Planer from Wall Countershaft—Motor on Floor.*

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##### Hangers and Brackets for Shafting.

Particular attention should be paid to the two views, Figs. 13 and 14, as they show an ingenious design of brackets and hangers for carrying line shafts and countershafts. The brackets shown in Fig. 13 are so formed that their upper portion extends over so as to grip one of the building girders. The bearings are suspended from their outer ends. The design is somewhat different in the other engraving, which represents the line shaft in the lathe department in the southwest wing. In this case it was impossible for the bracket to extend above the top of the girder, upon which is placed one of the tracks for the hand traveling crane. It became essential, therefore, that all of the shaft carrying mechanism should be below the rail in order not to interfere with

chines, and the smaller machines being grouped. Of course all of these are of the General Electric type. The latest style, and those which are used more or less freely, are the variable speed motors, which were practically developed by the company for their own use. They are now using of this pattern 8 4½ horse-power running at from 400 to 800 revolutions, 9 7 horse-power running 250 to 500 revolutions. These are all for three-wire control, the voltages being 125 and 250 volts. For the lower speeds the 125 voltage is used, which is obtained by connecting one side of the three-wire system and the neutral. Then by weakening the fields the several increases in speed up to the maximum are obtained. Finally, by connecting the outside legs of the three-wire system the 250 volts are obtained and by weakening the field strength

the remaining range in speed results. The great advantage of this three-wire system is that a smaller and therefore a cheaper motor can be built for a given capacity and a given range in speed.

In addition to the above there are the following motors, having variable speeds: 4 12½ horse-power, at 150 to 300 revolutions, and 4 15 horse-power, having from 130 to 260 revolutions. These sizes are for two-wire control, the armatures being always on 250 volts, and the complete range of speed being obtained by weakening the field strength. These two sizes of motors were perfected before the company considered or decided to use the three-wire system in this shop.

#### Application of Variable Speed Motor.

The application of a 4½ horse-power variable speed motor to a 72-inch Putnam lathe is shown in the drawings, Figs. 17 to 19. In this instance the motor was mounted underneath the live spindle; taking the place of the cone is a sleeve carrying two gears which engage with pinions on armature shaft. Change in speed of the spindle is obtained mechanically by means of the gearing indicated, the gaps in the speed necessarily resulting from this arrangement being filled up by the variable speed of the motor. The result is that by this combination of the two absolutely any speed required can be obtained with the utmost certainty between the minimum and maximum. This is shown upon the chart, Fig. 20, in which the heavy line indicates the speeds obtained with the belt drive originally furnished with the lathe, while the dotted line shows the speeds obtained with the direct motor drive. Comparing the two curves it will be noted that the one representing the belt drive is more or less irregular and that there are gaps which cannot be filled. On the contrary the dotted line indicating the motor drive is a perfect curve, which shows that any speed from the lowest, seven-tenths of a revolution, to the highest, 327 revolutions, can be obtained. To explain this another way, the motor provides for the removal of those irregularities of speed created by the mechanical part.

Theoretically the line from the lowest to the highest speed of the electric drive would be straight, but the curved one is introduced in order that it may be compared with that indicating the original cone drive. Since the rheostat controlling these motors has 50 points, any speed can be obtained. What has been said concerning the wide range of speeds obtainable in this lathe with the motor drive should be borne in mind when the descriptions of other types of machines are presented in the subsequent articles. The same range of speeds is in each case there obtained and the efficiency of the tool thereby increased. There are 94 motors in the building, including all variable and constant speed motors.

#### Panel Board.

Each motor is provided with a panel board placed within convenient reach of the operator. It carries an ammeter, a magnetic blowout circuit breaker, a switch and a rheostat. These devices provide not only for the complete control of the current passing to the motor, but also furnish at all times an exact indication of the electrical power absorbed by the machine in doing its work. It is an interesting study to watch the needle when the tool is in operation upon a piece requiring various degrees of power during its stroke, as for instance a shaper. In this case the power is of course at a minimum during the return or idle stroke, the reverse of the cutting tool or ram being indicated by a sudden jump in the needle, and then the return of the needle during the travel of the ram from its point of reversal until it strikes the work, when a further increase in power is shown as the tool takes hold and travels across the piece. As the tool leaves the piece another reduction in power is apparent, which continues during the idle portion of the stroke, an increase then taking place during the second reversal. Even in continuous cutting oper-

ations, such as occur in a boring mill, changes in power can be noted due to difference in amount of material removed by the tool, or variations in the homogeneity of the metal.

(To be continued.)

The Michigan Bolt & Nut Works of Detroit have just manufactured and shipped to Manila two carloads of iron to be used in the erection of the Government refrigerating and ice plant, which is to be erected at that point. The plant is an enormous one. It has a capacity for cooling at one time 5000 beesves, 7500 sheep, 100 tons of salt meats, eggs, and vegetables and butter—enough to supply the army in the Philippines for some time.

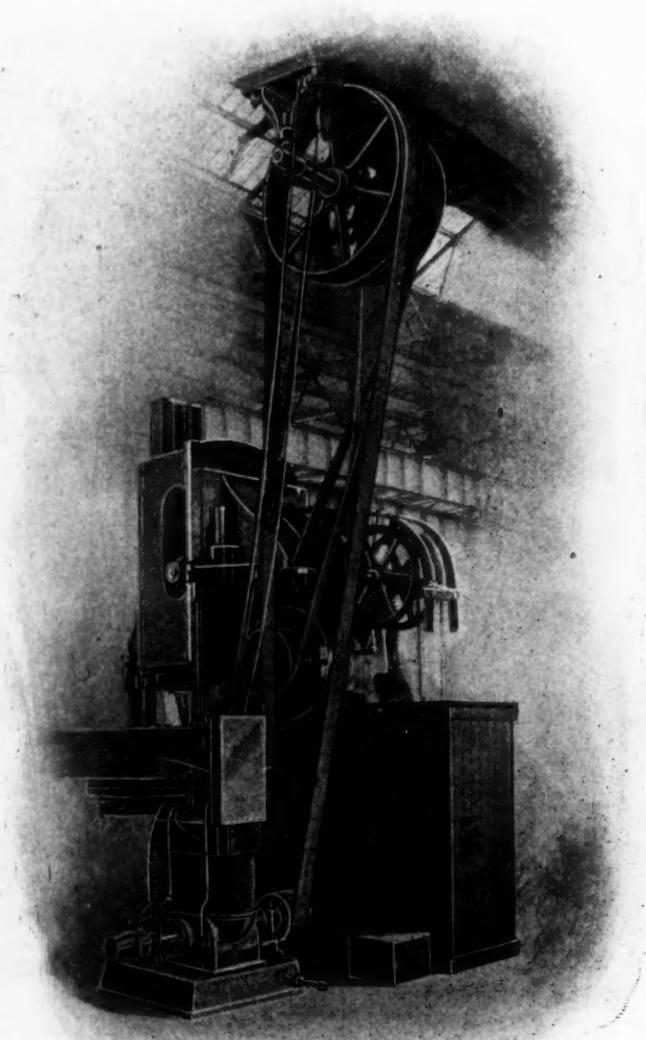


Fig. 16.—Driving Machine through Ordinary Countershaft.

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And, in addition, it will produce 50 tons of ice per day and 6000 gallons of distilled water. The ice is to be manufactured by the ammonia process. The building is to be 250 feet square and about 45 feet high, and is being erected on the left bank of the Pasig River. The windows and doors are protected with heavy iron guards, which they expect will resist any ordinary siege. On account of the tendency to earthquakes, the entire structure, which is to be built of brick, is tied together and anchored securely every few feet, which accounts for the large quantity of iron going into it.

An International Congress on Accidents to Workmen and on Insurance Societies is to be held at Paris from June 25 to 30. The president of the organization committee is M. Linder, while E. Gruner is general secretary. The headquarters are at 20 Rue Louis le Grand, Paris.

## Dangerous Tendencies in Recent Consolidations.\*

BY JAMES B. DILL, NEW YORK.

**Premise I.**—There is more danger to-day to the public from the tendency on the part of some to indulge in unreasonable denunciations and to attempt hysterical and unwise legislation against corporate capital than there is from the corporations themselves.

**Premise II.**—Against whatever evil threatening or existing from the corporate evolution through which this country is passing there is but one infallible safeguard, and that is an enlightened public opinion, framed upon a clear understanding of the whole situation and based upon an honest desire to do what is right.

We are in the first place dealing with and speaking of tendencies only, discussing the probable drift of affairs,

of having a proper line of demarcation drawn between corporations of integrity and those companies otherwise situated as is the public at large, largely as a means of self preservation.

To-day corporations strong in the integrity of their finances, their management and the *personnel* of their officers demand some line of demarcation between themselves and other corporations differently situated. This question, therefore, can be discussed with the same degree of earnest inquiry and quite as fully from the corporate standpoint as from the point of public inquiry.

### Publicity.

Few remedies against ills, real or supposed, in corporations can be prescribed by statute. Few bills can be introduced into the legislature and few enactments can become laws which cannot be strangled in their inception, crippled in their application and diverted from their intended effect by brains equally clever and by influence equally as strong as those proposing the measure, whether those brains and that influence be backed by combinations of capital or not. This rule has an exception, and that is when a calm, reasoning and intelligent public opinion has been fully aroused to the subject and has wisely determined its legislation. Heretofore the attitude of some of the corporation mathematicians has been to write the denominator in large and expansive numbers until the difference between \$5,000,000 and \$20,000,000 has become a difference without a distinction. Calling the denominator of the fraction the capital stock, so long as the corporate mathematician failed to put upon the public blackboard the numerator indicating the assets of the company there is nothing from which the public can deduct any known and certain results. To-day corporations of integrity seek the light, not only because they feel conscious of their ability to stand examination but for the added and equally important reason that some of their neighbors cannot stand such a test. Corporations strong in the integrity of their organization, their management and their financiers are to day forced by their surroundings, compelled by pressure of business competition and obliged by the force of a growing and enlightened public opinion, to draw a line of clear demarcation between themselves and other corporations differently

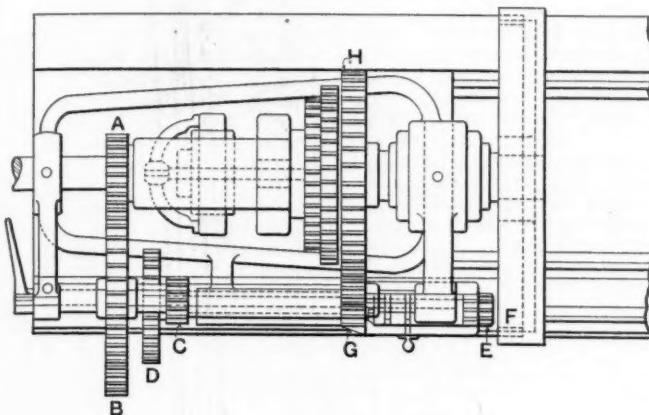


Fig. 17.—Plan of Electric Drive of 72-Inch Putnam Lathe.

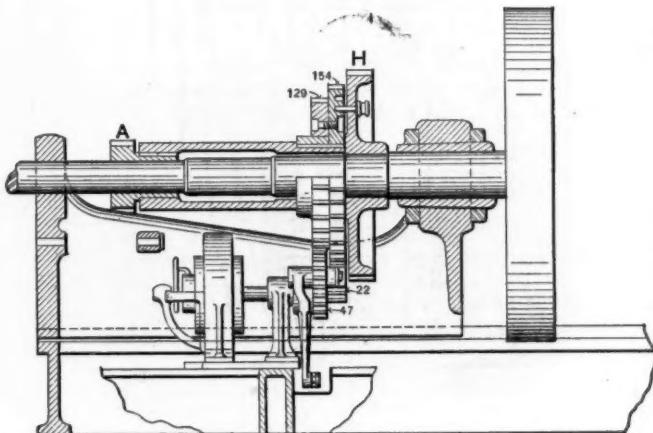


Fig. 18.—Sectional Elevation through Head Stock, Fig. 17.

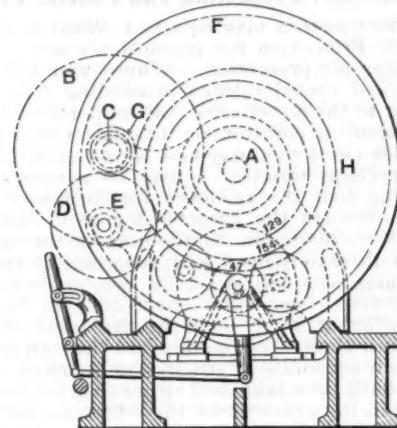


Fig. 19.—Sectional End Elevation, Fig. 17.

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dealing with dangers to be apprehended rather than those actually existent. Tendencies are to be found only in some combinations, most emphatically not in all, and by no means in the majority of the aggregations of capital in corporate form. In the next place we must bear in mind that any tendency which is dangerous imperils not only the public at large but threatens as well all corporations of integrity. Corporate capital, standing as it does in aggregations in close contiguity, the falling of the one is communicated to others, resulting in the possible overthrow of the many.

No one is more interested in the discussion of the so-called dangerous tendencies, or rather in determining whether in the first place they exist, whether in the second place they are or are not dangerous, than the corporate capital itself. The importance of the subject becomes apparent when we reiterate that the mercantile and financial business of this country has gone through an evolution. It has arrived at this stage—fortunately for this country—without the danger and peril of a revolution. Corporate capital of integrity to-day is as desirous

situated. But lately these great and sound corporations do not stand alone in expanse of capitalization; others saw that the millions denominator was easy to write on the public blackboard, and so long as the sound corporations were unwilling to complete the corporate fraction so long the imitators could make equal claim to the confidence of the investing public. The market became therefore crowded, even glutted, with securities of corporation propositions whose denominators were alike magnificent in their expansion, but whose numerators were the unknown quantities. The good were in danger of being injured by the failure of those otherwise situated. Hence necessity to-day compels corporations strong in their integrity to write the corporation fraction in full view of the public. To day corporations with corporate integrity and with real finances are compelled to protect themselves against corporate propositions with high denominators but without enumerators that enumerate. In the corporate vernacular of to day capital may mean one thing, but assets oftentimes mean another. Hence it is we find that integrity, both in the shape of corporate capital and corporate management and as well on the part of the public, demands, and each for its own proper protection,

\* From a paper read before the Ithaca meeting of the American Economic Association.

a reasonable degree of publicity in and about corporate affairs, accounts and finances.

#### Corporate Integrity.

In discussing what tendencies, if any, are likely to become dangerous, we seek a common line of demarcation upon which all thinking men must agree. This general line of demarcation between the good and the possibly bad, or resulting evil, is not difficult to find. That line of demarcation lies in the single proposition of corporate integrity from inception to finish. Wherever on the one side we find a corporation honest in its promotion, careful and trustworthy in its financing, honest in management, faithful in the discharge of its duties toward its stockholders and single in its purpose to produce the best business results, in such a corporation as this we look for no tendencies which may become dangerous, nor will we find them. But on the other hand all those organizations which depart from the line of integrity, whose promotion is improper or even fraudulent, whose financing is unwise or even vicious, whose capitalization is therefore excessive, whose corporate proposition has no numerator, only an expansive denominator, thus avoiding a proper degree of publicity, whose management seeks through a minority to control the majority and whose officers are more interested in the success of their private ventures in speculating in the stock of the company than the success of the business enterprise as an entirety—in such corporations we look for those tendencies which may become dangerous, not only to the public at large but to corporations generally, whose business may be dragged down because the public improperly class them with "corporations otherwise situated."

#### Excessive Capitalization.

The first tendency which may be regarded as dangerous to the public and to corporate capital is called excessive capitalization. Excessive capitalization has two parents: Promotion, which varies from impropriety to fraud in character.

Promotion, whether improper or fraudulent, is always accompanied by one other element, without which the enterprise promoted could never come into existence. The marketing of any undertaking, whether good, bad or indifferent, is generally dependent upon the financier. Therefore these two objects may be discussed together.

#### Improper Promotion and Unwise Financing.

The question may be asked, What is improper promotion? Promotion for promotion's sake merely is apt to be improper promotion. Where you find secret and undisclosed considerations proceeding from the promotion either to the directors of the corporation itself or to the moneyed corporation or its officers who finance it, then in such cases you may look for cases of promotion which are perhaps unwise. I may be permitted to observe in passing that the moneyed institution or that financier who observes the greatest degree of caution for and in behalf of the public is the man or the institution which must ultimately meet with the greatest financial success. No man who has stood by combinations good, bad or indifferent, from their conception in the brain of the promotor, at their birth in the hands of the financier, through their organization and through the management of their corporate affairs by the Board of Directors, until they have been launched either to a public success or laid away in the grave under the receiver's kindly care—I say no such man with such practical experience will deny that much of the root of evil and the beginning of much dangerous tendencies may be found with the promoter and with the financier.

It may be that the time will come when the public will demand that the corporation which has obtained public support through public representations of financiers and promoters, and which has failed and gone into the grave which shall have had, through the assistance of the bankruptcy courts, written upon its tombstone not "Well done, good and faithful servants," but "Here lie the results of fraudulent promotion and vicious financing," will insist that the name of the promoter and the name of the financier will be indelibly written upon the same tombstone.

The tendencies of excessive capitalization are three-fold. I am not prepared at this time to argue against the expressed opinion of some, who say that the flooding of the country with stock and corporate securities, which on their face state in plain language that their par value is \$100 while the public knows that the value is but a small fraction of that amount, has in the long run somewhat the effect of a depreciated currency. I am not prepared to violently differ at this time with those who say that excessive capitalization, which is productive of depreciated corporate securities, will eventually have much the same effect upon the investing public as a depreciated currency has upon a country's finances.

In support of this view it is urged that lack of accuracy in statements relating to financing, whether in corporate securities or public moneys, can only lead to

evil and that \$100 should amount approximately to \$100, whether written upon the bank bill issued directly by the moneyed corporation or upon the certificate of stock or the bond or other corporate security emanating from the moneyed corporation and countersigned or registered by the bank or trust company.

A country with securities that wildly fluctuate, that are affected by every breath of suspicion, suggestion or state of fact, is somewhat in the same state as a ship at sea with a loose and rolling cargo throwing itself from side to side in the hold of the vessel. The situation presents a grave question. The root of the trouble is the alarm, panic and fear which are produced from a lack of knowledge and from want of positive information as to

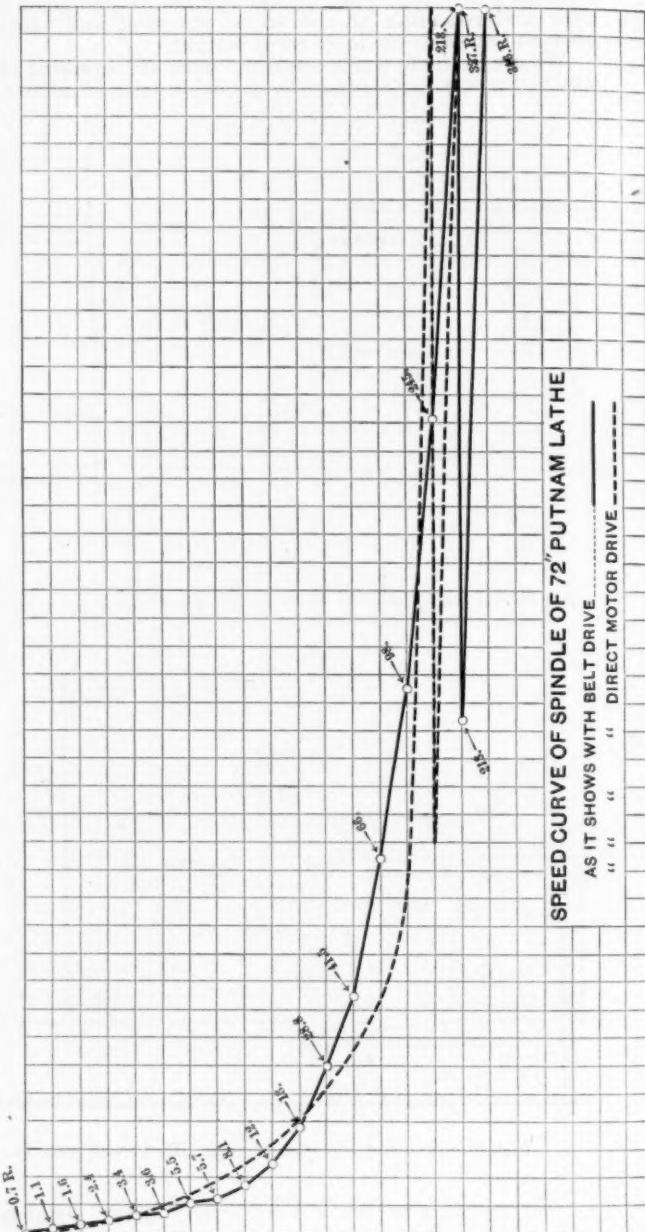


Fig. 20.—Speed Curves of Putnam Lathe.

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how high or how low these securities ought to go, based upon a public demonstration of the corporation fraction. It is the want of publicity, the inability to form an opinion and want of judgment as to sound values that cause the panic and create the ruin.

#### Improper Dividend Payments.

A corporation that is excessively capitalized in order to keep in the race must provide for the payment of at least minimum dividends. In such a situation, therefore, a board of honest and well meaning directors are faced with a difficulty; they must either pay their dividends to approximately the same amount as their neighbors more fortunately situated, or they must permit their stock to become depreciated in the market as a result of failure to pay dividends. The tendency of an attempt to pay dividends upon this excessive capitalization is to pay divi-

dends in excess of the actual earning power and out of capital account.

Another effect of excessive capitalization and the attempt to pay dividends upon such capitalization is to create a tendency which is to be deplored in any combination of to-day. That tendency is to create artificial earnings upon an artificial capital, either by artificially raising the price or by the depreciation of the wages paid. The result to the public from an economic standpoint is objectionable.

#### Avoidance of Publicity.

The question of publicity is one concerning which there are wide differences of opinion. It is a question concerning which men may honestly differ according to the viewpoint from which it is discussed. The publicity must be reasonable and it must be restricted as to those matters concerning which the public have a right to know. The corporations insist, and justly, that the publicity must apply as well to one as to another corporation similarly situated; that it is not just to ask a disclosure of one corporation which is not required of another similarly situated. Publicity as to any matter in or about the corporation which is accessible to every stockholder is sufficient publicity to answer the requirements of a proper demand. Publicity to all of the stockholders is practically publicity to the world, and the public need not be alarmed about a lack of publicity in any corporation where every essential fact concerning its inception, organization, management and affairs is known to every stockholder.

If every company should insist upon plainly printing upon the face of the bond every limitation upon the bondholders' rights contained in the mortgage, the investing public would less often come to grief. So, if there should be placed upon the certificate of stock every restriction upon the power of the stockholders contained in the charter or by-laws, then the public would less often make a mistake in their investment.

#### Evasive Legislation.

The laws of the State of New York are sometimes held up as a pattern in the matter of required publicity. An examination of the history of the statutes of New York shows a tendency to require from year to year less in the way of corporate publicity. Take it in respect to a single matter, that of annual reports. The courts have said that the failure of directors to make the annual reports required by the statutes was the commission of a moral wrong and directors failing to file the annual report were held liable *ex delictu* and not *ex contractu*.

The requirements of the State of New York in this respect have gradually been done away with by legislation. In 1890 "the stock corporation law" of the State (Chapter 564, Laws of 1890, section 30) provided in substance that "every stock corporation except railroad corporations shall annually, within 20 days from the first day of January, or, if doing business without the United States, within 20 days after the first of April, make a report as of the first day of January, which shall state:

"The amount of capital stock and the proportion actually paid in.

"The amount and in general terms the nature of its existing assets and debts, and all its receipts and expenditures during the year.

"The names of its then stockholders and

"The dividends, if any, declared since its last report."

It provided further that if such reports were not made and filed all the directors "to be generally, severally and personally liable for the debts of the corporation then existing, and for such that were contracted before the report should be made." (Laws of 1890, page 1072.)

The law of 1875 required such a report to be published in the newspapers. The act of 1890 required no publication. In 1892 the law was again amended, requiring less publicity, and all matters required in the act of 1890 were eliminated excepting the following three:

1. The amount of capital stock and the proportion actually issued

2. The amount of its debts or the amount which they do not then exceed.

3. The amount of its assets or the amount which its assets at least equal. (Laws of 1892, volume 2, page 1832, section 30.)

There is no requirement showing how this capital had been issued, whether in property or in cash. The amount which the debts of the corporation do not exceed is sufficed by a corporation with \$1000 indebtedness, saying "that the debts do not exceed \$1,000,000." The third provision—an amount which its assets at least equal—would be answered by prescribing "that its assets equaled \$100." There remained then little of real enlightenment in this report as to the true condition of the company.

In 1899, however, a new section was added to the act, providing that "No director or officer of any stock corporation shall be liable to any creditor of the corporation, because of the creation of any excessive indebtedness or because of any failure to make or to file an annual report, whether heretofore or hereafter occurring; in case of any

debt, as to which personal liability of directors or officers may be or shall have been waived by such creditor or by any one under whom he claims, or by any provision of any instrument creating or securing debt." (Laws of New York, 1899, chapter 354.)

This statute practically did away with the moral duty of publicity by providing that the filing or not filing of this report might be a matter of private barter made between the creditor and the corporation. This chapter 354 of the laws of 1899 made it practicable for every corporation to avoid publicity by adding to every contract and to every liability incurred specific words of waiver by the creditor to the individual statutory responsibility of the stockholder and director.

This same statute of 1899, which does away with the moral duty of a director to make public certain matters concerning his corporation, did away with another element of publicity, the prohibition against the creation of indebtedness in excess of the amount of the capital stock. It proceeded upon the presumption that the capital stock of a corporation was a fair statement of the value of its assets, and that so long as the indebtedness of the corporation did not exceed its capital stock there was property sufficient to pay the creditor. The creditor at this point might rest content, assuming that the publication of the capital stock and the amount paid in was in fact the publication of the maximum amount of indebtedness of the corporation, because the one was required to be contained within the other and not to exceed the other under penalty of the liability of the directors to pay the debt thus in excess.

But the passage of this act of 1899 was a letting down of the bars in this respect, and to-day no such assurance is held out to creditors of a corporation, because it has become usual for corporations to avoid publicity by insisting on inserting in their contracts a waiver of liability of directors and stockholders.

#### Stock Speculations.

I differ with any one who asserts that this tendency to speculate in stocks of the company is often found, or that it is frequently seen, in officers of corporations of standing and importance. The principle claimed is correct that any tendency in any corporation to have two interests in the business equally important and equally engrossing the attention of the officers, the one the business end of the corporation and the other the speculative or Wall street end, is a tendency which may be with emphasis pronounced as dangerous. It is dangerous to the corporation itself as exposing it to attacks from sources other than those of the business itself; it is dangerous to the officers of the corporation as tending to take their attention from the one and only end and purpose of the corporation—viz., the betterment of the industry in hand; it is dangerous to the stockholders as furnishing to them a false and unwarranted indication of the progress, or, as the case may be, the failure of the business itself.

The great captains of industry do not attempt to be great captains in speculation at the same time and in one and the same transaction. The two objects and purposes stand antagonistic each to the other. The officer of the corporation who has one eye upon the business end of the company and the other upon the price of the stock of his company, in which he may be speculating, may have his attention so diverted from the real object of the corporation that failure in both objects may be the result. In the ordinary walks of life such a diversion from the true aim of business enterprises would not be for one moment tolerated. That captain of the transatlantic steamship who should be guilty of indulging in private wagers as to the ship's run per day, or as to the length of her voyage, or as to the time when she would pass a certain point, would be instantly dismissed at the end of his home voyage. Because the tendency on his part (if allowed) to indulge in private speculation would endanger the lives of his passengers, the safety of the ship and the regularity of his duties, and all for the purpose of private gain.

#### Conclusion.

I am no believer in drastic legislation or an attempt to bring about by enactments of statutes that which should be regulated by an intelligent public opinion. The tendency of incorporated capital to day is to be right, to do right and to comply with whatever may be demanded of it by a well educated and fair public opinion. I believe that the proposition has been accurately stated that drastic penalties for officers and liabilities for stockholders are but too often pitfalls for the unwary and the innocent. It appears to me that incorporated capital could be better led by an intelligent public opinion than forced by unwise or hysterical legislation. Reasonable publicity and proper restrictions are advisable and necessary. Much publicity and many restrictions will be voluntarily assumed by corporate capital because of a desire to raise their own standing in the public community, to separate themselves from others differently situated.

It has been suggested that there should be a separate

corporate act requiring greater publicity and providing for a full compliance with a proper law in this respect. This need not at the outset be made applicable to all corporations, but such a corporation act should provide that corporations complying with it should have a greater degree of freedom from petty annoyance than suffered by those under other acts. Let the public exchange for true publicity freedom from State surveillance as to unimportant details. A high moral standard is often better than police supervision, and the proper aim should be to induce incorporated capital to voluntarily take this high moral ground rather than attempt to force capital by strict supervision and petty surveillance. The national banks organized under the national act are compelled by the provisions of that act to comply with strict requirements as to the management of their finances and the publicity of their affairs. In return for this they are granted certain immunities which are not incidental to ordinary corporations, their assets, for example, are free from attachment, no matter where located. Applying this same principle it has been advocated, and with sound wisdom, that a high class corporation act be passed embodying all these particulars so far as the public and publicity are concerned which are desirable, but in return granting to the corporations immunity from other details of less importance. The result would be the same as in the case of the banks. A national bank is by many deemed to be an institution of a higher standard than a State bank, hence we find more national than State banks. Applying the same principle to the suggestion already made and creating a high class of corporate law, we would find that those corporations who are able and willing to stand the test would voluntarily come under such a law for the very purpose of showing clearly in the minds of the public the difference between themselves and those corporations who are not able to thus stand before the public. In the matter of transportation one may go from New York to Chicago for \$10 or may spend \$28. It is merely a question of choice, but that choice is to a large degree influenced by the company into which one is permitted to go under the \$28 rate and forced to go by the \$10 rate. The man who would go to Chicago for \$10 is deterred from this by the fact that he would be obliged to go in an emigrant train and suffer all the disadvantages of thus being classed, while the man who desires to travel in comfort and to be recognized as a man of means and standing avails himself of the higher priced but more luxurious method of travel. Legislation is not needed to compel travelers to go from Chicago to New York by the limited train; the railroads do not seek to compel the use of the high grade means of travel by law. These matters regulate themselves. Emigrants associate with emigrants and are properly classed. Gentlemen travel with gentlemen and are likewise recognized by the company in which they travel.

In all of these discussions, rights, remedies and enforcements of certain matters of law, the safest and surest way to bring about the desired result is to educate the public and to enable them thus to classify the corporation according to the company with which they associate.

#### Carson Iron Mine Changes Hands.

Negotiations have been completed in the last few days by which McNair & De Camp, lessees of the Missouri Furnace at Carondelet, St. Louis, Mo., will become owners and operators of the Carson iron mines, located at various points from 3 to 15 miles from West Plains, Mo. Contracts for new machinery and modern equipment are being placed, and work on a spur  $\frac{1}{2}$  mile long from the main line of the Memphis Route will begin immediately. McNair & De Camp will use 400 tons of ore per day, and will contract large quantities to other parties. A force of 40 men is employed clearing away dirt and débris accumulated since former operations.

The Newport News Shipbuilding & Dry Dock Company have been empowered by the Virginia Legislature to manufacture steel and iron products and armor plate.

The Western Society of Engineers celebrated their thirteenth anniversary with a banquet at the Grand Pacific Hotel, Chicago, on the evening of the 2d inst. The officers elected for the ensuing year were installed at a business meeting held prior to the banquet, and are as follows: President, Ambrose V. Powell; first vice-president, E. D. Blake; second vice-president, William H. Finley; secretary, Nelson L. Litten; treasurer, Ralph Modjeski; librarian, Bion J. Arnold. A prominent feature of the addresses following the banquet was an original poem by Isham Randolph, chief engineer of the Chicago Drainage Canal, on Western engineering achievements.

#### Iron Ore Fields in Southern Utah.

PUEBLO, Col., January 4, 1900.—Contracts have just been closed between the owners of some newly discovered iron ore fields in the southern part of Utah and the Colorado Fuel & Iron Company, of this city, that are of great importance to the latter. They also call attention to a new ore district that seems destined to be important.

The lands taken by the Colorado Fuel & Iron Company consist of 11 United States mining claims, in Iron County, Southwestern Utah, 380 miles from Pueblo and about 300 miles from the Pacific Coast at Los Angeles. They were first brought to the notice of iron men from Minnesota about two years ago, when they were Government lands. These men, one of whom is R. B. Dear, a railway and mining contractor of prominence in Minnesota and Iowa, and the other of whom is F. W. Lerch, a chemist and assayer of the Mesaba range there, associated with themselves Colonel Milner, a mining man of Salt Lake, and have been engaged in development since then on 25 claims they were able to enter. In addition to these mining claims, they took up a large tract of coal lands, and some limestone ledges. The coal is of a character that can be successfully coked for an iron making fuel by the new Hemingway process, now owned by the Leiters of Chicago. Eleven of the ore claims and 640 acres of coal lands have now been leased to the Colorado Company after protracted negotiations here. The terms of the lease of the ore lands are that a royalty of 15 cents a ton shall be paid on an annual minimum output of 150,000 tons, with the provision that 180,000 tons more must annually be taken from these leases before any other ore bodies of the region can be utilized by the lessees. This makes to all intents an annual minimum of 330,000 tons, as the lessees are compelled to construct, or furnish business to some company that will so construct, a line of some 90 miles in length southerly from the present nearest railway point connecting with Pueblo. To make such a line profitable the annual business should exceed the sum of these minimums.

The ore is a hematite, varying from 60 to 65 degrees metallic iron, and carrying from 0.015 to 1 per cent. phosphorus, according to location. It is in a mountain some 2000 feet high, and these claims cover an ore bed of about 600 to 800 feet wide and a mile long, rising to an extreme height of 500 feet above the surrounding desert. It is estimated by the owners, two of whom are iron mining men of experience and accustomed to dealing with the ore deposits of the Mesaba range, in Northern Minnesota, that they have in sight above the surface of the desert some 40,000,000 tons of ore. They have sunk 200 feet below the surface, and there has been no change in the ore conditions at that depth. The ore, except in a small portion of the tract, is a soft deposit, and an offer made the Colorado Fuel & Iron Company to mine and place on railway cars for 20 cents per ton has been refused by them, under the belief that they can do the work at less cost. There is no surface covering on much of the ore, and on the remainder the covering appears to be merely a few inches of vegetable matter and mold which can be scraped off by one's foot.

It is stated that the Milner-Dear-Lerch interest have secured about 50 per cent. of the known deposits of the immediate section under discussion, and that a large part of the remainder has been taken by other individuals. A portion of these latter interests have been optioned by a European concern who propose to erect works there for the supplying of a portion of the Oriental trade, for the sum of \$800,000. This same concern, it is understood, have made offers for the remainder of the Milner-Dear interests, both coal and iron, but have not come to any agreement. This company expect to have furnaces and mills in operation in Southwestern Utah, and to build their own railway to an available harbor on the Pacific Coast. This company start in with a cash sum of \$2,000,000 for immediate necessities, and a guarantee of what more is needed as required, and their plans are very complete.

Since about ten months ago the knowledge of the iron ore finds of this district has been more or less common property in this city and Salt Lake, and there is now a great excitement at the latter point. Nearly a year ago the Colorado Fuel & Iron Company sent a force of prospectors into the region, but were somewhat surprised to find the favorable indications covered by others, who had been working for the Milner-Dear party for a year, and had perfected title. At that time the Colorado Fuel & Iron Company began negotiations for a lease, and this has but now been closed. Iron has been known to exist in that section for many years, but the country has been prospected time and again for other minerals, especially copper, and the great hills of iron ore passed by unnoticed. Two years ago the nearest railway point to these finds was 112 miles away; now it is but 90 miles to a connection with a road running to this city, while

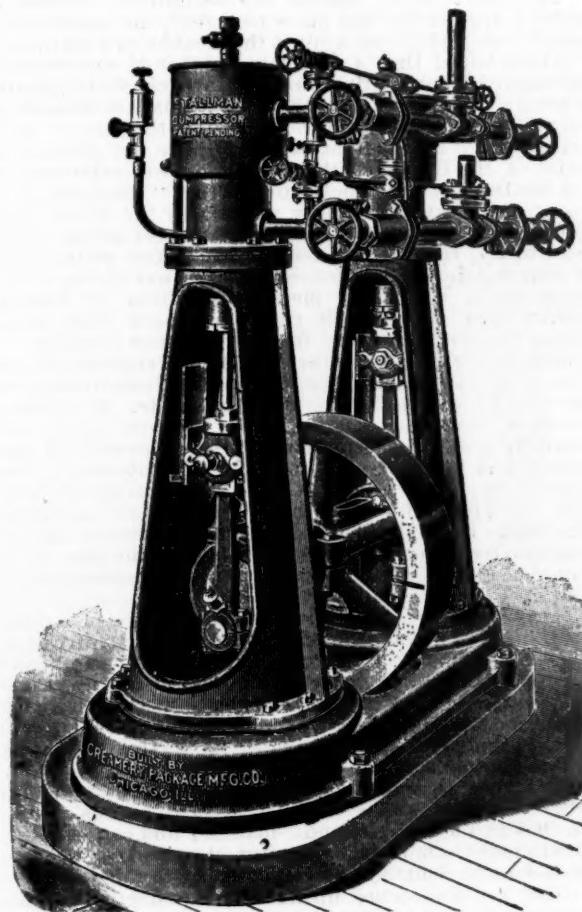
both the Oregon Short Line and the Rio Grande are building across the country and will pass but a few miles from Iron Mountain.

Mr. Lerch, one of the lessees of this property, is now in Utah superintending work by his company. Mr. Dear was here a few days ago, but has returned to Minnesota, where he has large railway contracts under way.

W.

### The Stallman Duplex Single Acting Ammonia Compressor.

The Creamery Package Mfg. Company, 1 to 5 West Washington street, Chicago, are paying special attention to the manufacture of mechanical refrigerating apparatus for purposes requiring the installation of comparatively small plants. An illustration is here presented of their Stallman duplex single acting ammonia compressor, which is so constructed that it embodies practically two independent machines, each of which is complete in its



THE STALLMAN DUPLEX SINGLE ACTING AMMONIA COMPRESSOR.

self and can be operated without the other. This is of great advantage, as it is extremely desirable that the process of refrigerating be continuous. In the case of a double acting machine the plant must be entirely shut down in case the compressor is disabled. The duplex or two-cylinder single acting machine becomes, therefore, in this case an insurance against loss from stoppage or breakdowns.

In this machine the stuffing box is constructed to hold under a pressure of not over 30 or 35 pounds of gas, whereas in the double acting type it must hold against a compression of 125 to 200 pounds. In the former case, therefore, it is not necessary to pack the stuffing box as tightly as in the latter, and the friction resulting from it is evidently much reduced. The discharge and suction valves are relatively large, thus avoiding the necessity of a considerable movement of the valves and securing the advantage of quick action. The cylinders are so constructed as to secure the complete discharge of the compressed gas from the cylinder at each stroke and have no loss whatever from clearance. The suction and discharge pipes do not in any way interfere with access to the cylinder and valves. Ample bearing surfaces are provided for all moving parts, thus securing the minimum of friction. The balance wheel is very heavy, giving to the compressor a smooth and easy pressure under

the loads carried. This type of machine is made in several sizes, ranging from  $2\frac{1}{2}$  tons refrigeration or  $1\frac{1}{4}$  tons ice, occupying a floor space of  $28 \times 56$  inches, to 8 tons refrigeration or 4 tons ice, occupying a floor space of  $48 \times 78$  inches. These machines are built in both single and double acting types.

### A Tariff Conference in Australia.

The Australasian *Ironmonger* prints the following account of the Intercolonial Conference of Chambers of Manufactures which has been sitting at Melbourne:

The conference seems to have been suggested, in the first instance, by the South Australian Chamber of Manufactures, and was attended by delegates from all the colonies that are about to enter into the federation. The delegates that assembled were all shrewd business men, most of them prominent in public affairs, as well as successful manufacturers. The principal manufacturing industries of the colonies were well represented, and where the delegates were not directly interested in any industry they had carefully prepared themselves with a large amount of evidence. The metal industries had influential delegates in W. Sandford of the Lithgow Rolling Mills, New South Wales; Aaron T. Danks of John Danks & Son, Melbourne; J. L. Dangerfield, Melbourne, and Mr. Ward, the well-known stove manufacturer of Sydney. The capital represented ran into millions, and the wage sheet to an exceedingly large amount.

It was noticeable from the beginning of the discussions that all present had laid aside provincial ideas and had set themselves to consider every question from the point of view of Federated Australia. It is perhaps easier for a manufacturer to take this standpoint than for any one else, for his dreams must always have been active business, large profits and extended markets.

The conference resolved to recommend that the federal tariff should be of a protective nature, and based on the lines of the Victorian tariff, and of such a nature as to develop the manufactures and producing interests of Australia. The committee were instructed that imported raw material required for manufacturing purposes, the like of which is not produced or suitable for production in Australia, be admitted free from duty.

After this discussion the conference settled down to a minute discussion of the tariff to be recommended to the Federal Parliament.

The conference divided itself into sub-committees and allotted to each sub-committee some section for discussion, and then the reports of the sub-committees were discussed in a committee of the whole. Although sitting from day to day for something like ten days, and as late as 11 o'clock at night, the work was not nearly accomplished, and it was decided to adjourn till March, 1900, in Adelaide, where an exhibition of South Australian manufactures will be going on at that time. A preliminary report only has so far been published in very vague terms, but as soon as the discussion of the tariff has been completed, copies of the suggested tariff will be submitted to the Chambers of Manufactures of the different colonies for revision and the result will then be freely published. Those who have been intimately acquainted with what has been done agree that the proposals will be couched in a spirit of moderation—not with a view of asking more than is wanted, that whatever is obtained may be more or less satisfactory, but that the manufacturers have asked definitely for the minimum rate of protection that will enable them to carry on their businesses, and that the interests of consumers have been also considered.

Taking effect January 1, 1900, the rate on pig iron, billets and articles taking same rates in carloads of 15 gross tons or over, from Pittsburgh and points taking Pittsburgh rates, via rail and lake to ports named below, will be as follows.

	Group 1.	Group 2.
	From Pittsburgh and points taking Pittsburgh rates to—	Per ton.
Detroit, Junction Yards and West Detroit, Mich.	\$1.80	\$1.95
Bay City, South Bay City, West Bay City, Saginaw, East Side, and Saginaw, West Side, Mich.	2.50	2.80

Rates shown under head of Group 1 will apply on pig iron, per gross ton, in carloads of 15 gross tons and over. Rates shown under head of Group 2 will apply on billets, blooms, ingots, muck or puddle bars and slabs, per gross ton, in carloads of 15 gross tons and over.

Under the Griffin patents a company are to make chilled wheels and castings at Barrow in Furness, England, on land purchased from the Barrow Hematite Steel Company, Limited. The new company, of whom W. M. F. Schneider is chairman, are called the British Chilled Iron & Steel Company, Limited, with a subscribed capital of £75,000.

## The French Reciprocity Treaty.

WASHINGTON, D. C., January 9, 1900.—Since the reconvening of Congress the representatives of a number of important industries opposed to the ratification of the French reciprocity treaty have arrived in Washington and have added considerable strength to a very comprehensive movement to defeat this convention. It has lately been made apparent to the leaders of the dominant party in both Houses of Congress that a combination is being effected not only between the representatives of those industries that are injuriously affected by the French reciprocity treaty, but also including the opponents of all the pending reciprocity treaties covering France, the Argentine Republic, Barbados, British Guiana, Turks and Caicos Islands, Jamaica and Bermuda. The movement might be said to be in the nature of an anti reciprocity campaign, for its purpose is to influence the largest possible number of Senators and Representatives to oppose all the treaties by bringing to bear upon them the protests of all their constituents whose interests seem likely to suffer by the ratification of any of the treaties.

The provisions of the French reciprocity treaty so far as they affect the metal trades have already been published in *The Iron Age*. The treaty with the Argentine Republic does not cover any articles in these trades, but the five agreements negotiated between the United States and Great Britain, covering the colonies above enumerated, are all of more or less importance to the readers of *The Iron Age*.

### Barbados.

Under the treaty with Barbados the following articles produced in the United States will be admitted free into that colony: Carts and vehicles, clocks, cycles and parts, lamps, machinery for electric lighting and wire fencing.

The following articles produced in the United States will be admitted into Barbados at a rate not exceeding 5 per cent. ad valorem: Hardware and cutlery.

The reciprocal concessions to products of Barbados do not include any articles of interest to the metal trades.

### British Guiana.

Under the treaty with British Guiana the following articles produced in the United States will be admitted free into that colony: Carts and vehicles, clocks, cycles or parts, lamps, machinery for electric lighting and machinery and implements for mining, for agriculture and for the manufacture of sugar and wire fencing.

The following articles produced in the United States will be admitted into British Guiana at the rate of 5 per centum ad valorem: Hardware and cutlery. The reciprocal concessions made to British Guiana cover only cane sugars, fresh vegetables and kaolin.

### Turks and Caicos Islands.

Under the treaty for Turks and Caicos Islands the following products of the United States will be admitted into the islands free of duty: Clocks and watches, tinware, carriages, carts and all wheeled vehicles, sewing machines, iron, steel, copper and manufactures thereof (except hardware and cutlery), machinery of all kinds.

The following products of the United States will be admitted at a rate of 10 per cent. ad valorem: Hardware and cutlery.

The reciprocal concessions made in this treaty are of no interest to the metal trades.

### Jamaica.

Under the treaty for Jamaica the following products of the United States will be admitted into the colony free of duty: Agricultural implements and tools, including plows, harrows, cultivators, graders, horse hoes, hoes, cutlasses, agricultural forks, axes, bill hooks, clod crushers, dibbles, sowing machines, stump extractors, scythes, shovels, picks and spades, apparatus and appliances of all kinds for generating, storing, conducting, converting into power or light and measuring electricity, including telegraphic, telephonic and electrical appliances of all kinds for communication and illumination; apparatus and appliances for generating, measuring, conducting and storing gas; belting for machinery of leather, canvas or India rubber; boats and lighters and their oars and fittings, bridges of iron or wood or of both combined, carts, wagons, cars, barrows, with or without springs, of all descriptions, except vehicles of pleasure; fire engines and fire extinguishers, lamps and lanterns not exceeding 10 shillings in value, locomotives, railway rolling stock and parts thereof, rails, railway ties and all materials and appliances to be used exclusively for construction, equipment and operation of railways and tramways; magic lanterns, sewing machines, steam engines, boilers, prime motor engines of all kinds, machines, machinery and apparatus, whether stationary or portable, worked by power or by hand, for manufacturing or preparing for market the agricultural and mineral products of the island, including sugar, coffee, cocoa, pimento, ginger,

kola, annatto, cocoanuts, tobacco, cassava, fruits of all descriptions, vegetables of all descriptions, woods of all descriptions and fibers; steel ingots, stills and parts thereof, telephones and telephone switchboards, wire fencing, with hooks, staples, nails and other appliances for fastening the same; zinc in blocks and pigs.

The reciprocal concessions under this treaty relate to crude natural products of no interest to the metal trades.

### Bermuda.

Under the treaty for Bermuda the following products of the United States will be admitted into the colony free of duty: Vessels, dredges, boats, tools, plants for the survey or improvement of ship channels under control of the island government, carts and carriages for animal draft, clocks, cycles, implements of agriculture and wire fencing.

The reciprocal concessions cover agricultural products only.

### Opposition to Reciprocity Treaties.

The combination against the reciprocity treaties is counted upon in the first place to solidify the minority in both Senate and House against the treaties as a class, and it is then hoped that a sufficient number of members of the majority representing Eastern States can be influenced to secure the rejection of the most obnoxious treaties, if not all of them, either in the Senate or the House. It is conceded that all the treaties will require the affirmative action of the House, as they are all drawn under section 4 of the Dingley act, which provides that "when any such treaty shall have been duly ratified by the Senate and approved by Congress and a public proclamation made accordingly, then and thereafter the duties which shall be collected by the United States upon any of the designated goods, wares and merchandise from the foreign country with which such treaty has been made shall, during the period provided for, be the duties provided for in such treaty, and none other." The ratification of these treaties must be had after the constitutional form and can only be secured by a two-thirds vote. It follows, therefore, that the Senate is the weakest point, and naturally the chief attention of the opponents of the French and other treaties is being concentrated on the Upper House. The Senate is also a more susceptible body than the House, for the reason that a single important constituent is often able to influence the votes of the two Senators representing his State, while in the case of the House he could only hope to control the Representative from his Congressional district.

Early in the present session representatives of a number of important New England industries, including dyes, glue, glass, soaps, medicinal preparations, paper and manufactures thereof, jewelry and cotton fabrics, came to Washington and began very active work. Probably the strongest influence in this combination is that representing the manufacturers of paper, as the treaty provides for a reduction of 10 per cent. on hand made letter paper, on envelopes, blank books, albums and various other manufactures of paper. The industry affected by this reduction has an enormous capital invested and can be relied upon to make a hard fight against the treaty. The two Massachusetts Senators are very friendly to this industry, but they are also looked upon as strong adherents of the administration and as favoring the general policy of reciprocity treaties. The delegation in the House is already divided on the subject of the treaties, a considerable portion favoring important amendments, if not the entire rejection of the convention.

The New England interest has secured the vigorous co-operation of the California fruit growers, who are here to fight the treaty with Jamaica. In a nutshell the Californians' complaint is that at the present freight rates by rail and ocean Pacific Coast products cost three times as much to land in New York as those raised in Jamaica. The Californians are also opposed to the French treaty on the ground that it effects a reduction of 10 per cent. in the present duty of 2 cents per pound on prunes, a duty which it is alleged is necessary to the growth of the prune raising industry in California, which has made great strides in recent years. The entire Pacific Coast is interested in this phase of the case, as prunes are raised as far north as Oregon.

### The Argentine Treaty.

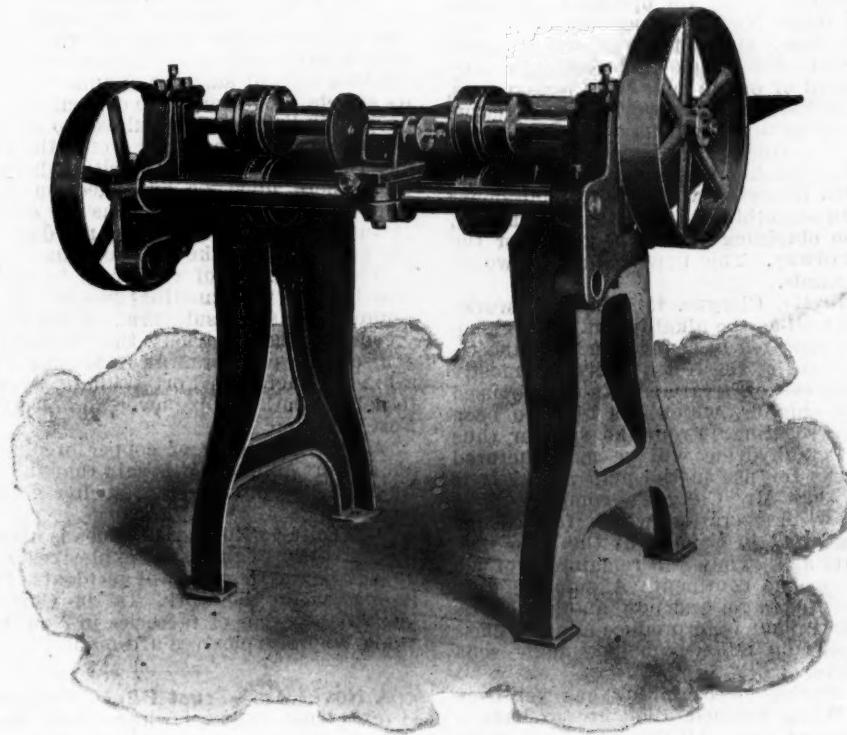
While the opponents of the French treaty are working up co-operation among those who oppose other reciprocity treaties the administration leaders are not idle, and a counter movement is on foot in which the benefits to be derived from other treaties by those sections of the country from which opposition to the French treaty is now proceeding are being urged as strong arguments in favor of the general policy of reciprocity. A significant illustration of the character of these arguments is found in the treaty which has been negotiated between the United States and the Argentine Republic. While the New England interests above referred to are opposed to a

French treaty, there are other interests of much greater proportions that will be greatly benefited by the treaty with the Argentine. One of the principal industries of Eastern New England is the manufacture of leather, and one of the strongest fights against the Dingley bill while pending was made by New England Senators and Representatives who opposed the proposed high duty on hides. The reciprocity treaty with the Argentine provides a reduction of 20 per cent. in the duty on hides, raw or uncured, whether dried, salted or pickled, and, as is well known, the exports of this commodity from the Argentine are very heavy. Another strong influence which the administration leaders hope to secure in favor of the reciprocity policy, because of the provisions of the treaty with the Argentine, is that of the Eastern wool manufacturers, as the treaty provides a reduction of 20 per cent. of the duties on all wools produced in the Argentine.

The treaty with the Argentine Republic furnishes other excellent illustrations of the manner in which the provisions of one convention may be invoked to strengthen those of another. For example, while the Northern Pacific Coast is opposed to the reduction in the French treaty of the American tariff on prunes it will be unanimously in favor of the reduction of 50 per cent. in the Argentine duties on canned salmon, lobsters, shrimps, &c., and the entire Pacific Coast and other sections will

### Rotary Trimming Shear with Adjustable Cutters.

Rudolphi & Krummel, 96 to 100 North Clinton street, Chicago, have brought out the machine herewith illustrated, which is a modification of the regular slitter with adjustable cutters built by that firm. This machine is best adapted to work requiring the sheets to be cut into a comparatively small number and in wide strips. The cutters are provided with cushioned hubs which hold and guide the sheet perfectly straight while being cut. They are adjustable lengthwise on the shaft. The cushioning of the hub is done in such a way that the rubber does not come in contact with the sheets, but is covered by metal rings, between which the sheets pass, thus avoiding wear of the rubber and also insuring a straight cut. Sheets of any length can be trimmed by simply extending the table in front. The illustration shows this machine supplied with a grinding attachment which provides means for sharpening the cutters in their place. This attachment is fastened on the round bar in front of the cutters, and is driven by a drum pulley fastened to the countershaft. These machines are, when desired, provided with automatic conveyors, there-



ROTARY TRIMMING SHEAR WITH ADJUSTABLE CUTTERS.

also find an important advantage in the same reduction on canned corn, succotash, tomatoes, apples and other fruits, including those dried or evaporated. The South and Southwest is already favorable to the French treaty because of the concessions secured for cotton seed oil, but the influence in this section will be considerably strengthened as to the general policy of reciprocity by the fact that the duty on cotton seed oil entering the Argentine Republic will be reduced by the Argentine treaty to 6½ cents, gold, per kilogram (2.2 pounds).

A powerful interest favorable to the French treaty has lately developed from an unexpected source—namely, the nurserymen, florists, seed importers, market gardeners and certain lines of farmers, whose co-operation has been secured by the reduction of 20 per cent. in the American tariff on plants and seeds. The increase in the tariff on these goods made by the Dingley bill caused a strong protest, which made it appear probable that the bill would have to be amended while under consideration, and since its passage special bills providing for a reduction of these duties have been introduced from time to time, but they have uniformly been pigeonholed.

A conference of the administration leaders in both Houses will be held within a few days to determine the exact programme to be pursued in the effort to secure the ratification of the pending treaties, and while the opposition is conceded to be formidable favorable action in both Houses on all the conventions is confidently predicted by leading members of both the Ways and Means and Finance Committees.

W. L. C.

by increasing their capacity and dispensing entirely with skilled labor.

### Electric Power in Northwestern Railway Shops.—

An interesting example of power transmission is found in the new power house and electric transmission system now being installed by the Chicago & Northwestern Railway Company at their West Fortieth street shops in Chicago. These shops cover a strip of ground nearly  $\frac{3}{4}$  mile in length and have hitherto been provided with a number of individual steam plants. A large power station is now being erected at the center of the shops, which is to provide light, heat and power for the entire system. The company are installing two 250 horse-power Ball vertical cross compound engines, each engine being direct connected to two 75-kilowatt General Electric direct connected dynamos. There is also to be added a small unit, consisting of one 60 horse power Ball engine, direct connected to two 20-kilowatt General Electric dynamos. The motors throughout the plant will be of the General Electric Company's manufacture and will aggregate several hundred horse-power. The wiring throughout will be on the Edison three-wire system, providing 110 volts for the lights and 220 volts for the motors. The entire electrical outfit, including dynamos, motors and wiring, is being furnished by the construction department of the Chicago Edison Company. It is expected that the plant will be in operation early in the spring.

## Canadian News.

### Works at the Sault.

TORONTO, January 8, 1900.—F. H. Clergue, head of the Lake Superior Power Company, of the Sault Ste. Marie Pulp Company, and of the Algoma Central Railway, was in Toronto on the 4th inst., conferring with the Commissioner of Crown Lands, Hon. E. J. Davis. His companies are interested in the development of the mineral and timber resources of Western Algoma, one of the properties owned there by the Clergue interests being the Helen hematite iron mine. In an interview while here Mr. Clergue stated that the programme of new works which the Ontario & Lake Superior Power Company have in hand is as follows:

Reduction works, to cost.....	\$1,500,000
Chemical works, to cost.....	500,000
Alkali works, to cost.....	1,500,000
Sulphite pulp mill, to cost.....	250,000
Steel rail mill, to cost.....	2,500,000
Total.....	\$7,250,000

He declares that the Sault will be made the Sheffield of Canada. Some of the works—notably the new sulphite pulp mill, which is well advanced to completion—are under way, but others have not yet been begun. The reduction and refining works, Mr. Clergue says, are under construction, and will be ready for operation, he adds, by the first of next June. Nickel, copper and other ores are to be treated in them. Ore is to be drawn from the district between Sault Ste. Marie and Sudbury. Any one who has a carload of ore to sell, Mr. Clergue says, will find a market at the reduction works. Mr. Clergue expects that such an industry will have a splendid effect on the part of New Ontario tributary to it, and will raise the value of the mineral properties there. It is to be presumed that his interview with the Commissioner of Crown Lands had something to do with this matter, probably also to the obtaining of a land grant for the Algoma Central Railway. The new reduction works are to employ 1000 hands.

Also, according to Mr. Clergue, the chemical works have been begun, as well as the alkali plant. The chemical works are to be operated in connection with the reduction works. The ores of the North Shore are mostly sulphides, and a process of treatment is to be used which will save the sulphur, which has hitherto been generally lost in the roasting. From the sulphur thus preserved sulphurous anhydride will be manufactured in the chemical works for use in the pulp mills. It is to be remembered that Mr. Clergue's company have great pulp mills now in operation which formed the largest pulp making plant in Canada at the time they were built some years ago. They still remain one of the largest pulp plants on the continent. A sulphite fiber mill was added two years ago, and now another one is to be built. The alkali plant is to produce another class of chemicals for the pulp mills—namely, caustic soda and bleaching powders.

As to the steel works, no beginning has yet been made upon them. When finished, they are to have a capacity of 1000 tons per day. All the works are to be on the Canadian side and in the Ontario town of Sault Ste. Marie, to which Mr. Clergue hopes to drain the natural wealth of the north by means of the Algoma Central Railway. By the time navigation is open, Mr. Clergue says, that line will be ready to carry iron ore to Lake Superior, and from the Helen mine in the Michipicoton district it is to deliver ore at the company's docks, which are to be the largest on Lake Superior. Already, he says, 500,000 tons of Helen ore have been sold for shipment to the United States and to various Ontario points.

The Ontario & Lake Superior Company, who have all these projects in hand, are an American corporation, using American capital. The members of it belong to New York and Philadelphia, Mr. Clergue and his enterprising brothers and the other members of the Sault Ste. Marie Pulp Company being also Americans. It is understood that the \$20,000,000 Ontario & Lake Superior Company will absorb all the other companies concerned.

### Michipicoton Iron.

Michipicoton is the mineral district which at present is exciting most attention. It occupied the largest space in the last report of the Bureau of Mines. It is the region in which the activity of the Clergues is greatest. A few nights ago a paper was read before the Canadian Institute here by Dr. Coleman on the "Iron Ores of Michipicoton and Their Geological Relationship." Dr. Coleman should know more of the subject than any other man, as he is the geologist who has most recently and most thoroughly explored the mineral district of Michipicoton, especially with a view to study the iron deposits. In his paper he ventured the opinion that the Mattawin and Atikokan and related ranges in

the Rainy River district may prove as rich as those on the other side of the border. The Michipicoton ranges, he says, may prove to be a new series of deposits scarcely, if any, less valuable. They have a close likeness to the Vermillion range. He points out that the fine grained sandstone in which the vein occurs has been traced 30 or 40 miles. He thinks it probable that the Mattawin iron range belongs to the same series.

### Furnace By-Laws Carried in Fort William.

At the municipal elections on New Year's Day the property owners of Fort William voted on the by-laws to bonus the iron furnace and the copper smelter and to exempt these properties from taxation. They carried the same by an overwhelming majority. Everything, therefore, so far as the town is concerned, is now ready for the Mattawin Iron Company to put up their furnaces. It has now voted to them a bonus of \$50,000 in aid of the construction of a charcoal iron furnace, and a bonus of \$25,000 in aid of a copper smelting plant, and their property is exempt from taxation. The blast furnace is to have a capacity of 50 tons per day. From the time that the agreement is ratified by the Legislature the company are not to take more than 18 months to build the iron furnace and must spend upon that work \$150,000. The furnace must be operated so as to produce 50 tons daily for 250 days per annum for ten years. Wages must be paid in cash, and the company must keep no retail store. If the supply of wood fuel fails, the company are to be allowed a year in which to change their plant to use coke. The town of Fort William is to get 2000 tons of slag per annum for the improvement of its streets. Whenever the company make default in any particular they become subject to municipal taxes.

In regard to the copper works the agreement calls for two furnaces capable of smelting daily 60 tons of copper ore. There must be expended on the works \$50,000. They must be run six months per annum for ten years, at an average rate of 60 tons per day. In other respects the agreement is like that relating to the iron furnaces.

The treatment of copper, it is expected, will be carried beyond the smelting process. Refining works are counted on as a result, first, of the copper smelter, and, second, of the electricity that is to be provided by the Jenison Power Works at Kakabeka Falls. Jenison has a big contract with Fort William, by which he is bound to deliver both water power and electrical power within Fort William.

As to the supply of copper ore in the district lying about Fort William, it is said that the deposits at Round Lake alone would keep a smelter going for half a century.

The Ontario Bureau of Mines is about to issue a pamphlet treating of the use of explosives in mining. This is a result of the frequency of accidents. Professor De Kalb is engaged in the work. In the Christmas holidays he visited a number of factories in New York and Pennsylvania where explosives are made.

C. A. C. J.

**A Novel Anti-Trust Bill.**—The latest and most novel anti-trust bill was introduced into Congress last week by Representative Gaines of Tennessee. It provides that no letters, postal cards or circulars, checks, drafts, bills, &c., issued to or drawn by any firm, association or corporation dealing in or producing any growth, product, commodity or article of commerce or trade, shall be carried in the mails when such firm, association, corporation or persons are associated or combined for any or either or all of the following purposes: "To abolish, abridge, or in any wise affect open and free competition in trade or exclude rivalry between the parties thereto, or to abridge competition between others thereto, or themselves and others engaged in like or other business. 2. To create or promote any restrictions in trade or commerce, or to limit or restrict production of any article or commodity of trade unduly to affect the market. 3. To affect the wages of employees of themselves or others, or diminish the opportunities of wage earners by contracting production, abridging competition or otherwise, or to create monopolies, &c." The bill provides a fine of not less than \$5000 and imprisonment of not more than one year for each offense.

**A Synopsis on Nickel Steel.**—Among the papers read at the California meeting of the American Institute of Mining Engineers is an admirable synopsis of the literature on nickel steel by David H. Brown of Cleveland, Ohio. It is a memoir of 78 pages, and is sure to prove extremely valuable to those interested in the subject.

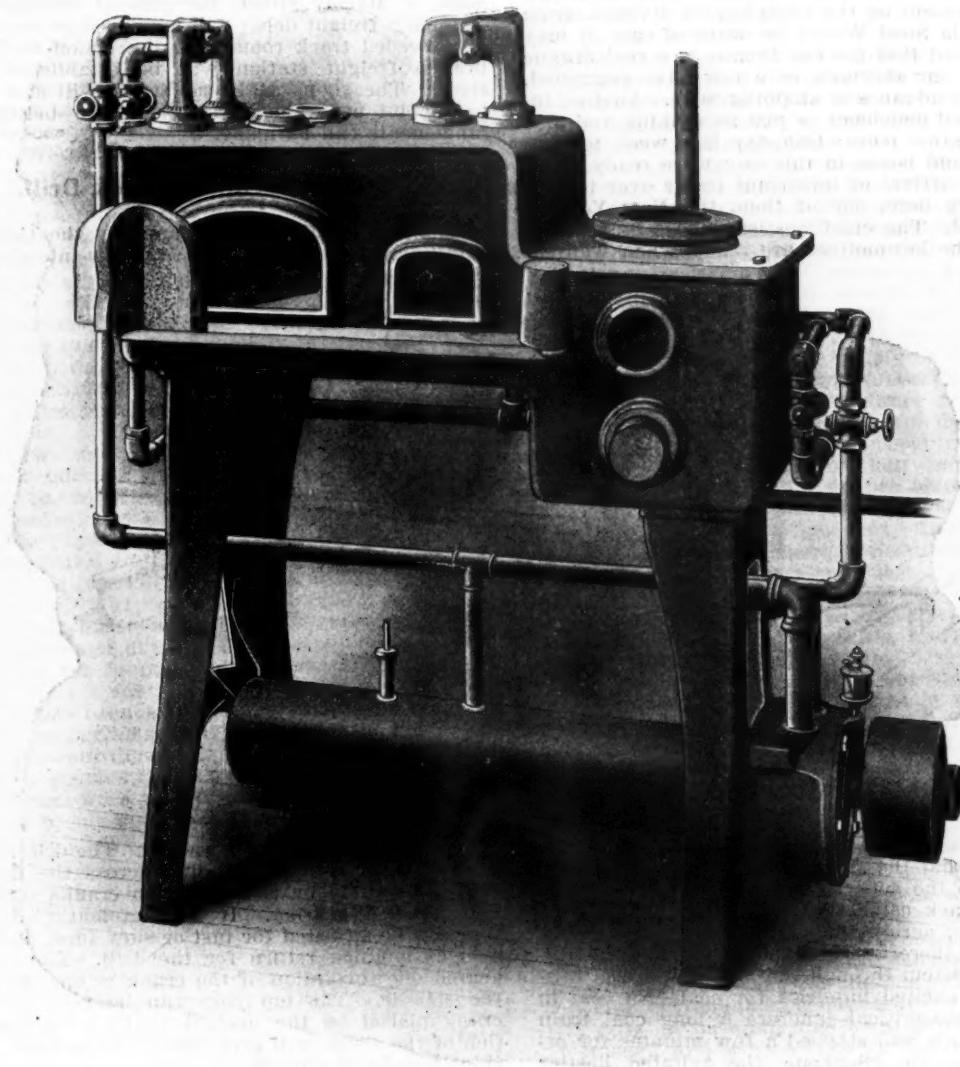
A company, styled the Societa Italiana Ernesto Breda, have been incorporated in Milan, Italy, with a capital of \$2,000,000 for the purpose of acquiring the business of the Breda Iron Works and developing the construction of locomotives.

**The Stewart Gas Blast Furnace.**

The accompanying engraving illustrates the new Stewart gas blast furnace, made by the Chicago Flexible Shaft Company, 158-160 Huron street, Chicago. This furnace was especially designed for machine shop use. It combines on one base a complete outfit for hardening, tempering or annealing all kinds of small tools, dies, milling cutters, taps, reamers, springs, &c. It is provided with burners insuring an absolutely uniform heat, which is under perfect control at all times. Saving in time is effected since the furnace is always ready for use in either of its compartments. Uniformity of heating is insured, either in the muffler or lead bath, while, for tempering, the oil may be kept at the temperature placed in the bath that experience has proved the best suited for each special case. The burners are entirely outside the case, and do not come in contact with the intense heat

gave forth a great light of pure white and brilliancy, and with parabolic reflectors placed behind the flame the light was thrown for a distance of more than a thousand feet, illuminating the tunnel to the smallest detail and producing the desired effect for a sharp and good negative. Though not attended with danger, the experiments were certainly most novel and exciting, as can be imagined. The engine, running like a huge bullet through what practically looked like an immense gun barrel, illuminated with a light that could not be faced, and necessitating the operators and those who took part in the experiments to wear blue glasses, and rushing through this hollow tube at a 30-mile pace." The pictures are intended for the Paris Exposition.

**Standardized Drillings.**—The American Foundrymen's Association Committee on Standardized Drillings desires to report that there are now nearly 150 laboratories



THE STEWART GAS BLAST FURNACE.

inside. The blower is simple in design, has no gears or springs, and requires a speed of less than 500 revolutions per minute.

An interesting piece of photographic work has just been accomplished in connection with the Saint Clair tunnel of the Grand Trunk Railway in the preparation of a moving picture of the interior from a train moving at the rate of 30 miles an hour. The work was done by officials of the Grand Trunk, with the aid of specially prepared apparatus. The Toronto *Globe* describes the arrangement: "The car on which the working machines were placed was fitted up with a specially arranged outfit. A small house was built on the right in front of the car (the car being what is known as a gondola or flat car with sides) in which were arranged the four powerful flashlight machines. The machines were connected with the compressed air on the locomotive with proper attachments on the tubing to regulate the air which forced the magnesium powder from the powder chambers of the flashlight apparatus out through an aperture across a flame of alcohol, where it ignited and

using its standards. As some laboratories use more of one sample than another, the committee notifies all who have purchased sets of three or four bottles that they can now obtain separate bottles of samples A, B, C and D for \$2 each. There are quite a few laboratories that have not yet adopted these standards, and those who are interested in bringing about a greater uniformity in analyses, which these standards are helping to do, will please address any member of the following committee: Thomas D. West, chairman, Sharpsville, Pa.; Dr. R. Moldenke, Penn Malleable Company, Pittsburgh; James Scott, Lucy Furnace, Pittsburgh; P. W. Gates, Gates Iron Works, Chicago, Ill.; E. H. Putnam, Moline Plow Company, Moline, Ill.

Some opposition has cropped out against the present officials of the Amalgamated Association. It is said that Theodore F. Shaffer, now president of the association, will have a strong opponent for re-election in the person of W. H. Evans. Thomas Reese, a roller at Canonsburg, Pa., will be a candidate for the position of secretary.

### Central Pennsylvania News.

HARRISBURG, January 8, 1900.—There has been little or no improvement in this industrial district since last week in the matter of coal. Everywhere one goes in the manufacturing district and among the mills he hears the same complaint. It is becoming more serious as the stock taking period ends, for the reason that the various plants are now ready to resume operations on the same active scale as before the close of the year. Orders which were temporarily suspended until after stock taking are now being urged for immediate delivery, and the various plants should be on full turn day and night. This, however, is out of the question. It is necessary to shut down two or three times a week to wait for coal, and all the clamorous appeals of the mill men and manufacturers amount to nothing in the face of the hopeless car famine on the railroads. When a great railroad company like the Pennsylvania cannot even transport its own hurried order for steel rails, for an important improvement on the Philadelphia division, from the Pennsylvania Steel Works for want of cars, it may be safely assumed that the car famine is a real famine and not a false car shortage, as a few have suggested, antecedent to an advance in shipping rates. Another instance of the coal deficiency is just as striking and also illustrates the same point: One day last week ten engines at the round house in this city were ready to be sent out on the arrival of important trains over the divisions centering here, one of them the New York & Chicago Limited. The chief hostler, whose business it is to see that the locomotives are ready when wanted,

works, for instance, every few days. The mills of the Lalance-Grosjean Mfg. Company were closed a week for stock taking, but resumed to-day. The coal supply is short, and General Manager Stanford, who went to the Woodhaven plant this week, was compelled to wire for coal on Saturday. The last week or ten days have allowed of the repairing and stock taking customary at this season, and with plenty of coal all the industrial establishments in this belt would be in steady and full operation.

The Harrisburg Mfg. & Boiler Company have been in need of all around boiler makers for some time. The company have plenty of work, but are cramped somewhat on account of shortage of skilled help.

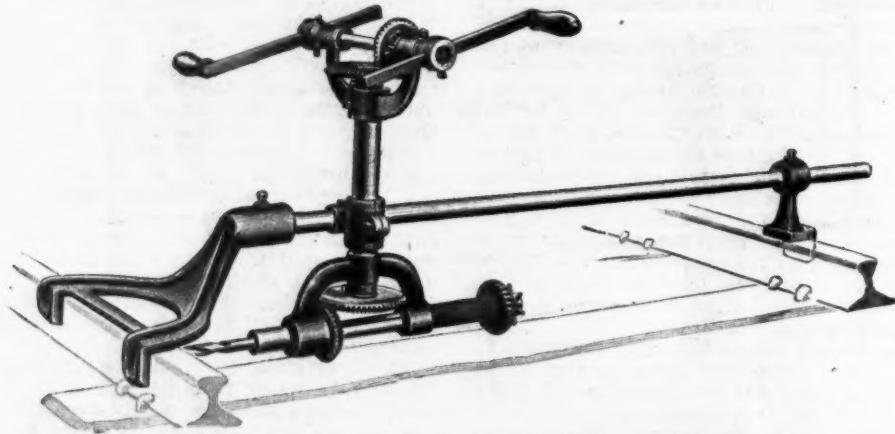
The Middletown Car Works have shipped 45 narrow gauge fruit cars to Cuba during the last week.

The Pennsylvania Railroad Company have about completed plans for extensive improvements in freight facilities here. It is said to be the company's purpose to erect a steel shed 1000 feet long, covering eight tracks, west of Maclay street, for general transfer purposes. The main freight depot will be moved to North street to give needed track room near the Union Station, and a branch freight station will be established at North street. The shops at Broad street will also be moved to a point near Maclay street, where better yard arrangements can be made.

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### The Burnham Track Drill.

The track drill manufactured by the George Burnham Company of Worcester, Mass., is intended for drill-



THE BURNHAM TRACK DRILL.

discovered that there was no coal for them. After convincing himself that the supply was entirely exhausted he telephoned to the superintendent's office, explaining the situation. Back came the answer that there must be some mistake; surely there was coal in the yards. He was told that there was not, and for a while the railroad telephone system through the long yards was fairly sizzling with excited inquiries for coal. No coal in sight. But at this critical juncture a long coal train drew into the yards and stopped a few minutes for orders. Rushing to the telephone the agitated hostler called the still more agitated superintendent and told him of the passing train. Quick as a flash came back the order: "Cut out eight cars and report them to me. Will arrange the matter at Jersey City!" The coal was consigned and the waiting engines went out on time. A few days later a coal train for the Pennsylvania Steel Works also paid tribute to the railroad over which it had passed almost to its destination. These instances serve to show the dire straits not only of the manufacturing and industrial plants, but also of the railroad companies, and demonstrate conclusively the real character of the car shortage. Before the car famine became so marked the Pennsylvania Steel Company had in stock a large quantity of coal and coke, but it is all gone and the company must depend upon what comes from day to day, running some departments half capacity and others not at all; orders meanwhile are far behind the dates of delivery.

The Herr street mill of the Central Iron & Steel Company was compelled to shut down on account of the coal famine, and it is certain the main plant of the company cannot be operated long except in the most hampered way unless conditions improve. Of course, these shut downs are temporary and in many cases brief, but it is not a small thing to start and stop a department like the Bessemer plant of the Pennsylvania Steel

Works, for instance, every few days. The mills of the Lalance-Grosjean Mfg. Company were closed a week for stock taking, but resumed to-day. The coal supply is short, and General Manager Stanford, who went to the Woodhaven plant this week, was compelled to wire for coal on Saturday. The last week or ten days have allowed of the repairing and stock taking customary at this season, and with plenty of coal all the industrial establishments in this belt would be in steady and full operation.

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S.

The Pittsburgh Steel Shafting Company.—The Pittsburgh Steel Shafting Company, with works at Rankin, Pa., a few miles from Pittsburgh, and manufacturers of turned, rolled and polished steel shafting and square and hexagon bars, have opened offices in Rooms 1212-1214 Park Building, Pittsburgh. The plant of this concern is new, having been put in operation only a short time ago, and is equipped throughout with the most modern machinery, having a capacity of 1000 to 1500 tons a month of shafting, spindles, hexagon and square bars. The officers of the concern are Thomas W. Fitch, president, and Thomas W. Fitch, Jr., secretary and superintendent. An Eastern office is maintained in the Postal Telegraph Building, 253 Broadway, New York City.

A London cable dispatch reports that the coal famine in Great Britain is becoming acute and a crisis has been reached in the northern manufacturing districts. Unless coal supplies are increased shortly many factories and works will have to shut down, throwing thousands out of employment. Several iron furnaces in the Glasgow district have already been blown out for lack of fuel.

## The Iron Situation.

BY WILLIAM S. MATTOX.

BOSTON, January 8, 1900.—The question which disturbed the entire iron and steel world this side the Atlantic six months ago, and which crystallized and took form in the title of a paper by so eminent an authority as Archer Brown, "Will It Last?" is not the query which confronts the thinking foundrymen and manufacturers at the opening of the new year. "It" has lasted, and is vitally present to-day. The disquieting note now is, "How will the change come, and what will be the end?" Prosperity has surprised even the American people. When the first advance was made on Alabama pig iron, months ago, it was accepted abroad, and especially in England, with a cynical and indulgent acquiescence. The usual American boom was predicted. It would last long enough to make a few fortunes, and then break, as many another boom had broken, leaving the industries of the country paralyzed and shorn.

This view was shared by many sagacious men on this side. The advance came so plausibly, with so little ostentation, that we were in the midst of it before we realized its proportions. The country had hardly adjusted itself to the new conditions when predictions were made that the whole thing was ephemeral, and then came fevered discussions as to what caused the change, and as to when the good times would cease. And all this time the country was earning dividends, enlarging natural resources, increasing plants, and raising wages, and every class shared the fruits of prosperity. The recently published Government statistics of the year's export trade alone serve to show what has been achieved.

It was profitless then to urge on the consideration of men whose entire time was taken up in reaping well deserved harvest, the question of the permanency of the state of business. "Take the goods the gods give thee" is a wise philosophy. It is as idle to-day to speculate on the measure of the revenge time will bring for the fat months past and present. Nevertheless, such speculation is epidemic and must needs be handled. Progress is a law of the universe. Only man made ethics provide for retrogression. There is another so called natural law, applicable to physics and often made to serve a purpose in the realm of trade, that the pendulum must swing as far to one side of the perpendicular as to the other. Confidently expecting the backward swing, it is wise to prepare for it, but a better plan would seem to be a perpetuation of existing conditions.

The arguments dealing with oversupply and reduced demand have no weight apparently in the present crisis. This theory has been worn out by discussion till not a shred is left to lay hold of. Ultimately, this will be one of the causes contributing to the decline. Consumption will lapse by degrees till production exceeds it, but such reversal is not to be feared now. The capacity of the country has been tested, and the relative values of supply and demand have been fairly accurately determined. Nearly every furnace down on the lists to be rejuvenated is now in blast. The few remaining cannot possibly alter the facts materially. The country is making pig iron at a greater monthly rate than ever before in its history. And yet the capacity to absorb this sudden increment has correspondingly enlarged. There would appear to be no fear, then, that for a long time to come the iron market will be drugged with a weight that will break it down. Reports show that in New England, as elsewhere, both North and South, business is active; demand has not decreased. Prices are maintained, and there is a hopefulness and optimism for the future that has hardly been apparent up to now. Only a few days after the holidays and large and small orders are coming to light. Consumers thought to hold back, and by checking the zeal to sell, inferentially they would ease up furnace activity. But this has not been the case, and as users began to see their supplies dwindling to the vanishing point they were forced to buy. Each inquiry of magnitude strengthens the hands of the furnacemen, and the great volume of small orders which filters in every day fills up the gap and makes the case complete.

As a matter of fact it is no more to the interest of the foundryman, and the machine tool maker, and the engineer, and every user of iron, to depreciate prices now, than it is for those furnaces that have struggled along for years and are only now beginning to realize on their investments. A dangerous few say they can make more money on a falling market than on a rising one, but the majority are satisfied with the state of things existing now, and are eager enough to have prices harden where they are. It will necessarily follow that when the slump in raw materials actually comes all branches of allied trades will suffer.

Temporarily, then, one element of expected weakness is disposed of, the fear that we could make more iron than we could use; and it must be remembered in this

connection that America's exports of pig iron have been lighter than usual during the last six months. Another source of anxiety was the speculative market. But the country has just risen superior to the threats of a purely speculative panic, and this of itself serves to indicate the solidity of the boom. At any other time such a series of shocks as Wall street and the banking interests of the country have just endured would have knocked the props from under any but the firmest of markets. Here, then, is another menace comfortably shelved. But the query which is in every thought to-day still persists, "From what direction will the blow come, and how far down will it carry the market?" There are those who believe that prices are too high to-day, unwarranted by any preceding motive, and that if pig iron could be sent down to \$15 a ton, and steel rails and other commodities proportionately, and all held there firmly and permanently, it would be much better. A made to order market could not last. There can be no guarantee, if such a downward move were begun, that any power or combination of interests could check the fall at any one point and hold it there, and no man dares make the attempt. The only recognizable fact of the situation today, on the threshold of a new year, is that prosperity is self evident and bids fair to continue. In spite of this the disturbing query confronts one in every counting house, mill and shop, "Where must we look for the influence which will start prices downward, so that we can protect ourselves against it?"

The question is much easier asked than answered, and it might better be left to some bolder or more imaginative mind, or to the slow solution of the problem itself, for final settlement. In the first place, it seems unwise and unnecessary to suppose that the trade revival now on cannot last long. There are no good reasons why to-day should not merge into to-morrow, and next month, and next year, without bringing any marked change. When the iron trade ceases to worry over what may be, and contents itself with the satisfying facts of the present, much will be done toward preserving the *status quo*. Demand preceded the first advance and was its most natural cause. Demand to-day keeps figures where they are. Reports from all over the country show that the prospects for 1900 are better than they were for 1899. Careful estimates of all branches of manufactures put the increase of new business for the coming year at something like 15 to 20 per cent. The tone is cheerful and encouraging, and there is no doubt that more iron will be melted this year than last. In this connection it may be noted that something like 15 furnaces have gone out of blast or been banked during the past fortnight for lack of raw materials, and this will cut off something from the tonnage.

In viewing the question of a continuance of demand, the world's needs in pig iron and in finished iron and steel products must be taken into account, for the markets of the world are so mutually dependent that an abrupt checking of foreign business would affect prices here as quickly as anything else. Here is one source of danger to American markets. Foreign complications, affecting the world's consumption, an unsettled political outlook in the United States, labor troubles, all these are possible causes to be reckoned with as eventually affecting prices. But none of these is so imminent as to cause alarm. There seems to be a general belief that when the reaction comes, it will be sudden and violent, and that prices will touch the famous Birmingham \$6 basis by a short cut. This is possible but not probable, and it is more reasonable to believe that the downward move will come as naturally and as gradually as the upward movement, and without jarring the delicate machinery of trade. A gradual diminution of demand will herald the change, and an equivalent lessening of the productive capacity may be effected to meet this by various means at the disposal of makers.

It has already been pointed out in the columns of *The Iron Age* that the first indication of a shading of prices, either voluntary or forced, will not necessarily have the effect of breaking prices, because this will uncover orders which have purposely been held back hoping for just such a change. This very loosening of a few big deals would send prices up again. Large interests, which have not heretofore put in an appearance, would be tempted by a reduction, and the immediate exposure of such big wants would stop any falling tendency. Trade is no nicely balanced, there is so much reserve demand and so much latent energy waiting to be developed, that to predict a decline now is utterly without warrant of fact. Another point, sometimes overlooked, is the fact that, generally speaking, the furnace output is contracted for for the next six months at least. Many furnaces cannot book orders before July or August, and buying is going on at such a rate now that in a few weeks there will be little available iron to dispose of this side of next December. This means that whatever may happen to affect prices the present cannot be robbed of its advantages, and at least another 12 months of prosperity is staring us in the face.

# The Iron Age

New York, Thursday, January 11, 1900.

DAVID WILLIAMS COMPANY,	PUBLISHERS.
CHARLES KIRCHHOFF,	EDITOR.
GEO. W. COPE,	ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS,	HARDWARE EDITOR.
JOHN S. KING,	BUSINESS MANAGER.

## The Paris Library of The Iron Age.

Preparations for the Paris Exposition have now progressed so far that the available space has been practically allotted and a preliminary list of the exhibitors has been given out. It was quite evident at the outset that only relatively few representatives of our leading industries would secure adequate space, and that facilities would be wanting to direct foreign buyers to the sources of the endless variety of products of the metal trades.

Realizing that this constituted an opportunity to do good service to the metal and allied industries, the publishers of *The Iron Age* brought to the attention of the United States Commission an undertaking which met with their cordial approval and co-operation, and led to the assignment of a well located space for the exhibit in the Department of Mining and Metallurgy close to the stairway which leads to the gallery in which the hardware section is installed.

The plan consists in gathering and exhibiting at the Paris Exposition a Library of the Commercial Literature published by the American manufacturers of iron, hardware, machinery and metal goods generally. It will consist of the catalogues, price-lists, circulars, section books, description of plants and other commercial printed matter in these lines.

All manufacturers of any class of metal goods are requested to send us their printed matter for this library. We would be glad to have the collection include every printed document used in the trade. No charge whatever will be made in any form. No goods will be sold. No special prominence will be given to any manufacturer. Our recompense will come from the opportunity to increase our already extensive foreign circulation, and from the satisfaction of doing a service to the industries we represent.

A catalogue giving the names and addresses of all manufacturers represented in the library will be distributed at the exposition, and widely circulated by mail in the various European countries. As it will indicate concisely the character of their products, it must be of benefit to those manufacturers who are included in it. It will form a live directory of the American metal trades which cannot fail to attract the attention of the foreign trade to American goods, as well as draw visitors to the library. It will contain no advertising.

The library will be handsomely fitted up with conveniences not only for storing, but also for comfortably consulting the documents of which the library will consist. Our installation has been designed by the architect of the United States Commission, and will be built and set up by the official contractor. It is therefore sure to be not only creditable in appearance, but also in harmony with its surroundings.

The library will be in charge of competent persons, speaking English and French, able and willing to aid those desiring information about American metal products. It will be carefully arranged, indexed and catalogued in such a way that foreign buyers will be able

to find any catalogue or price-list they may desire, and to study any subject in which they may be interested. It will include the current numbers of *The Iron Age*, as well as files of this publication.

We feel convinced that the undertaking, whose main features we have outlined, will prove of much service in promoting the export trade in American metals and metal goods, and we feel confident of the co-operation of American manufacturers who will favor us by a prompt response.

## Legislative Restrictions on Trade

The attempt of lawmakers to control the courses of business is a story as old as commerce itself, though it is only since the days of Adam Smith that it has been clearly perceived by impartial thinkers that the proper functions of the Government in this direction are in reality quite limited, and should be confined principally to the prevention and punishment of fraud, the protection and supervision of credit and the collection of revenue.

Any Governmental control or supervision, in addition to these, is a step directly toward socialism. Whether socialism be a great future evolution or simply a sophistical fallacy, does not come within the scope of this article, but it can be said that for all purposes of business it is not a condition that we are prepared to accept at present.

Experience has shown that trade thrives best where most let alone, and where left free to work in a natural way. The proposition is so simple and so fortified by experience that we are naturally inclined to accept it as an axiom and to smile at the stories that come to us across the water of the childish, annoying and oppressive restrictions on commerce that prevail in some of the older countries. Yet it is a sober fact that our own lawmakers are out Heroding Herod, in their efforts to control and in some cases to destroy the commerce between the States.

The question of the meaning and ultimate outcome of the concentrating tendency of the day is one which is engaging the best minds of the country, and it is confessedly a subject that so transcends human experience as not to admit of any definite prophecy. Yet the Legislatures of various States in a mad bid for popularity have framed so called anti-trust laws which not only strike at the validity of contracts and at personal liberty, but which, if enforced, would entirely prevent free commerce between the States. One Legislature has actually gone so far as to encourage dishonesty and to put a premium on fraud by enacting that a debt contracted to "a trust" shall not be enforceable in the courts of the State in question, and this enactment was recently upheld by its Supreme Court.

Whatever may be the evils of the spirit of concentration, it is very evident that it is not likely to be handled either intelligently or impartially by many of our State Legislatures. It is certainly a serious question when a great economic problem is used merely as a campaign cry to attract the ignorant and unthinking voters. The natural result is that many honest but uninformed people are being led far astray from the real meaning of the subject, and many of the great enterprises of the country have become the target of senseless and undeserved abuse.

The fear of monopoly and continued unreasonable high prices is not shared by any who are familiar with the facts. Every observer of the history of trade during the past 25 years knows that it is impossible to prevent competition springing up in every branch of

manufacture so long as both money and raw material are so plentiful in this country. There have been combinations of brains, wealth and great manufacturing advantages which have exhausted every ingenuity to prevent competition and they have failed utterly. To-day, on the contrary, the large iron and steel interests realize clearly that competition is not only inevitable but near at hand, and they are devoting their attention, not to schemes for suppressing competition and continuing high prices, but to getting their houses in shape so that when competition does come they will be ready to meet it, and to manufacture goods as cheaply as, if not more cheaply than, their competitors.

He is a very shortsighted observer who does not realize that it is not alone the business of this country, but the business of the world that is at stake, and that when these great iron and steel interests have completed their plans for cheap raw material and cheap transportation we shall control the market of the world. Not by virtue of high prices and monopoly, but by reason of lower prices and better quality than can be had elsewhere.

There is a shibboleth now among law makers about free and unrestricted competition, as though that were the panacea of all our commercial ills, in entire forgetfulness of the fact that it was the long reign of reckless and unrestrained competition that brought about the present concentration and drove manufacturers from one extreme to the other. It was sometimes regarded as a paradox, though the time has given it proof, that a large concern managed on right lines can give the consumer better service, both as to price and quality, than a host of smaller ones, besides giving steadier employment to workingmen at more constant wages.

The real question as issue is the proper expression of competition. The natural evolution of events will take care of this to much better purpose than will sumptuary laws. The worst of these laws is that, being often crudely constructed and frequently unjust, they fail of accomplishment because they attempt to substitute arbitrary enactments for natural processes. The statute books are full of laws, conceived and drawn with every legal ingenuity, to prevent understandings and combinations to maintain prices, yet as a matter of fact these laws are dead letters, and will always be so, for the very simple reason that no laws can ever prevent private agreements and understandings, and, in attempting to do so, they merely arouse resentment and cause the distinction to be made in the minds of the people between the laws which are founded upon right or human necessity and those which are merely the product of ignorance and political expediency.

#### Machinists' Hours and Wages.

The machinists are working themselves up to the point of demanding a reduction in the working day from ten to nine hours. They are also about to insist upon an advance in the minimum rate of wages from \$2.50 to \$2.80 a day. If the shorter day and higher wages are both conceded by employers, it would mean a practical advance of 25 per cent. in the cost of the work performed in a working day. This is a heavy advance, which, added to the present high cost of iron and steel, would make a radical change on an almost infinite line of products. In some cities the machinists are not inclined to be too grasping and favor advancing the minimum rate of wages without shortening the working day. In other cities the situation can best be described by quoting a "business agent" of a local union, who says: "We expect that our request will be granted, because it

is a just demand, and because we are strong enough to enforce our demand." It is to be hoped that moderation will prevail as heretofore in the councils of the machinists' leaders, and that no demands will be made that employers will feel themselves compelled to resist to the extremity of closing their works. That would be a serious blow to our prosperity. The suspension of work by machinists generally would badly disarrange every branch of productive industry.

#### The Chicago Drainage Canal.

The practical completion of one of the greatest engineering works of modern times dates from the 2d inst., when the channel of the Chicago Drainage Canal was connected with Lake Michigan, through the Chicago River, and the water of the lake began to flow by its own gravity toward the Mississippi. The actual completion of the great enterprise will be delayed for perhaps two or three weeks until the Illinois authorities are satisfied that all requirements of the act permitting the construction of the canal have been complied with. Meanwhile the channel will be completely filled with water for its full length of 28 miles from Chicago to the controlling works at Lockport, which will be ready to be opened immediately upon the announcement of the official sanction, and the connection with the Desplaines River, thence to the Illinois River, and thence to the Mississippi will be established. The work has been actively pushed for over seven years, having been inaugurated September 3, 1892, when the first spadeful of earth was turned.

The canal is intended primarily to dispose of the sewage of the city of Chicago and thus prevent Lake Michigan from being contaminated, that being the source of the water supply for the inhabitants of that great and still rapidly growing city. Intercepting sewers are now in course of construction which will divert the flow of all the city sewers toward the drainage canal. Ultimately it is expected that the canal will form an important link in a system of navigable water communications extending from Lake Michigan to the Gulf of Mexico. For this reason the canal has been made wider and deeper than would otherwise have been necessary. A large channel was nevertheless needed merely for drainage purposes in order to properly dilute the sewage and render it innoxious to the citizens of the districts through which the water of the canal will flow. The minimum depth of the water provided for is 22 feet. The minimum width is 160 feet at the bottom. The volume of water passing through it is placed at a minimum of 300,000 cubic feet a minute, with a velocity of  $1\frac{1}{4}$  miles an hour. The total cost of the work, including administration, right of way, railroad bridges, and interest on bonds issued by the city of Chicago, was \$33,525,691 to the 1st of the present month. The cost of the actual construction was \$23,693,014.

Most interesting engineering developments were connected with the work of excavation. While the problems presented to engineers and contractors were not surpassingly difficult, the manner in which they were executed and the rapidity with which the entire undertaking was pushed have marked a new era in canal construction. The *Chicago Tribune* states that it is an open secret at this time that when the first bids were made for contracts the figures were placed below the margin that would yield a just profit on capital invested and the labor demanded. These low bids were made with the object of securing the contracts on so vast an enterprise, with the hope in reserve of making it up on future contracts. This is a common method pursued in bidding

for municipal and government contracts, and was followed with confidence at the beginning of the work on the drainage canal. The sequel was instructive, if nothing more. The contractors awoke to the realization that, while they were dealing with a municipality, it differed in its complexion, policy and methods from those of the general political run. While its officers were elected by popular vote, few of them wore partisan livery. For the most part they were straight business men, who had taken hold of a business proposition and proposed to push it to completion on business principles. This was a revelation for some of the contractors, and the effect has been almost amazing in its results. The contractors were under heavy bonds for the performance of their contracts and the trustees declared their intention of holding them strictly thereto. There were tears and wailing, lawsuits and threats, but to no avail. Then the contractors turned to the other alternative and proceeded with the work. But in doing so they drew on their inventive genius, with the result of evolving some of the greatest labor and time-saving machines in the history of mechanical engineering. These machines have enabled contractors who were confronted at one time with a certain loss not only to perform their contracts to the letter, but to count profits far in excess of what they would have made under the old condition of excavation work and political "extras." In addition to this their inventions have given an impetus to great engineering enterprises, and made probable vast improvements that otherwise might have lain unhatched in the incubator of time for generations.

New forms of grading machines were devised, capable of moving 100 cubic yards of earth in an hour. Huge steam shovels were built, which fell but little short of handling 1000 cubic yards each of difficult material in ten hours. In some sections of the canal dredges could be used, and these were of the highest type of efficiency. Ingenious inventions were employed in conveying loosened material from the channel to the dumping grounds on the banks. These conveyors were of varied types, but in every case were designed for handling earth and stone with as little labor and as great rapidity as possible. Some were inclines running from the bed of the channel to a height which brought the loads far over the dump. Others were composed of bridge work spanning the entire channel, with the ends supported on trucks running on rails laid parallel with the channel, the bridge serving to support conveyors which brought material from the channel and dumped it on the banks. Locomotives and temporary tracks were freely used. Some sections of the canal were blasted for their entire length and width from solid rock. The grand total of earth and rock removed in the course of the work was 43,478,659 cubic yards. It is stated that if the entire volume of the excavated material was deposited in Lake Michigan in a depth of 40 feet of water it would make an island one mile square with its surface 12 feet above the water line.

This colossal undertaking has proceeded despite legal as well as natural obstructions. The scheme has been fought by hostile interests within and outside of the State. Citizens of the interior of Illinois have not only feared serious consequences to their health from the flow of Chicago's sewage down their rivers, but material injury to property from the overflow of low lands by the increased volume of water. The people of other States have also been excited by the possibility of the contamination of their drinking water, although 300 miles from Chicago. Every care has been taken to dis-

arm hostility and to convince those interested that no danger is to be feared, but all legal troubles may not yet be averted. If they are all overcome as they arise, and the waters of Lake Michigan are permitted to flow peacefully through this great channel, the people of Chicago will have increasing reason to be proud of their achievement from year to year. Pure drinking water is absolutely necessary to sustain the future growth of the city.

#### A New Classification of Scrap.

The Republic Iron & Steel Company have adopted the following as their standard classification of wrought and steel scrap:

- A No. 1 Railroad Wrought: Links, pins, bars, rods and all heavy iron from railroad shops and cars, 8 inches and longer.
- B No. 2 Railroad Wrought: Track bolts, spikes, nuts, channel bars and mixed angle bars.
- C Shafting: Iron and soft steel,  $1\frac{1}{2}$  to 4 inches, round and square; 4 feet and longer, in straight bars.
- D No. 1 Wrought: Bars  $\frac{3}{8}$  to 4 inches, round or square; flats  $\frac{1}{4}$  inch thick and heavier; all 4 inches long or longer; exclusive of wagon and buggy tires, shapes, and all bent pieces not suitable for fagoting.
- E No. 1 Country Wrought: Iron and soft steel rods and bars, wagon tires, axles and horseshoes; not less than 75 per cent. to be fagoting scrap and horseshoes, free from cast, malleable, hard steel and sheet iron.
- F No. 1 Mill: Iron and soft steel bars, not less than  $\frac{3}{8}$  inches, round and square, and flats not thinner than No. 12 wire gauge; tank in sheets and rings, crown bars, pipes and flues (clean and free from lime), punchings and clippings. May be 8 inches and less.
- G No. 2 Mill: Iron and soft steel hoops and sheets, cotton tie clippings and ties, and iron too light for No. 1 mill; wire rope 10-foot lengths and under, wire netting, free from galvanized and tinned stock, tangled wire and skeleton sheet scrap.
- H No. 1 Busheling: Iron and soft steel pipes and flues (clean), tank and bands, No. 12 and heavier, boiler plate punchings and clippings, and soft steel and iron spoiled drop forgings and trimmings; nothing to be over 8 inches or wider, free from galvanized or tinned stock.
- I No. 2 Busheling: Cut hoops, sheet, cotton ties, and similar light material; nothing to be over 8 inches long or wide; bundled wire and bundled sheet, suitable for busheling without further preparation; bundles not to weigh over 40 pounds, and not to be over 15 inches square; all free from hard steel, cast and malleable, and galvanized or tinned stock.
- J Turnings: Iron car axle turnings and chips.
- K Turnings: Soft steel car axle turnings and chips.
- L Turnings: Machine wrought and soft steel, clean and free from borings and drillings, other metals, dirt and lumps.
- M Drillings: Wrought or soft steel, clean and free from other metals, dirt and lumps.
- N Cast Borings and Drillings: Clean and free from other metals, dirt and lumps.
- O Mixed Borings and Turnings: Clean and free from other metals, dirt and lumps.
- P No. 1 Boilers, Cut: Sheets and rings; rings to be 30 inches in diameter and over, and rivets cut at all seams.
- Q No. 2 Boilers, Cut: Under 30 inches in diameter and riveted flues, 16 inches and less.
- R Boiler and Ship Scrap: Bar and shape ends, punchings and shearings, free from curly clippings and hard steel.
- S No. 1 Cast: Machinery and railroad cast, no piece to weigh over 75 pounds.
- T No. 2 Cast: Stove plate and railroad locomotive grate bars, free of burnt iron.

The bi-monthly conference on the bar iron wage scale will be held at Youngstown, Ohio, on Wednesday, January 10, and wages for January and February for puddling and finishing mills will be arranged. The present rate for puddling is \$5.50 per ton, based on a price of 1.60 cents per pound for common iron bars. As the price of common bars for some time past has been 2.15 cents, at mill, or higher, the puddlers expect an advance to \$6 a ton for boiling and a corresponding advance for finishing mills.

The new list of Henry F. Hill, 123 Oliver street, Boston, dated January 1, 1900, of second-hand machinery in stock is being sent to the trade.

## A Temporary Decrease in Pig Iron Production.

### Stocks Increase Slightly.

Owing chiefly to the fact that a considerable number of blast furnaces in Alabama and Tennessee were banked during the holidays, we entered the new year with less furnace capacity at active work than on December 1. This temporary feature overshadowed the blowing in of a number of furnaces which had been out for repairs. Of course it tells on the output, but not really as much as it appears. Stocks are showing a modest increase in a good many districts.

The weekly capacity of the furnaces in blast on January 1 compares as follows with that of preceding periods:

	Furnaces in blast.	Capacity per week. Gross tons.
January 1, 1900	290	294,186
December 1, 1899	283	296,959
November 1	277	288,522
October 1	265	278,650
September 1	257	267,335
August 1	244	267,672
July 1	237	263,363
June 1	220	254,062
May 1	217	250,096
April 1	205	245,746
March 1	192	228,195
February 1	195	237,639
January 1	200	243,516
December 1, 1898	195	235,528
November 1	196	228,985
October 1	192	215,635
September 1	186	213,048
August 1	187	206,777
July 1	185	216,311
June 1	190	225,398
May 1	194	234,163
April 1	194	232,339
March 1	193	234,430
February 1	184	228,338
January 1	188	226,608
December 1, 1897	191	226,024
November 1	183	213,159
October 1	171	200,128
September 1	161	185,506
August 1	152	165,378
July 1	145	164,064
June 1	146	168,380

The status of the charcoal furnaces was as follows:

### Charcoal Furnaces in Blast January 1, 1900

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New England	11	3	258	8	730
New York	2	2	198	0	0
Pennsylvania	13	2	115	11	550
Maryland	4	1	90	3	440
Virginia	4	1	48	3	290
Ohio	8	2	163	6	395
Kentucky	3	0	0	3	200
Tennessee	6	3	674	3	550
Georgia	3	1	425	2	300
Alabama	7	4	1,255	3	240
Michigan, Missouri and Wisconsin	16	10	3,971	6	2,688
Texas	4	1	260	3	740
Utah	1	0	0	1	175
Oregon	1	0	0	1	275
<b>Totals</b>	<b>83</b>	<b>30</b>	<b>7,457</b>	<b>53</b>	<b>7,553</b>

As compared with previous months the record of active charcoal furnaces stands as follows:

	Furnaces in blast.	Capacity per week.
January 1, 1900	30	7,457
December 1, 1899	30	7,511
November 1	29	7,113
October 1	25	6,222
September 1	24	5,665
August 1	22	6,189
July 1	20	6,018
June 1	16	4,943
May 1	20	4,846
April 1	17	4,777
March 1	16	4,330
February 1	17	4,967
January 1	20	6,026
December 1, 1898	18	6,018
November 1	20	5,947
October 1	20	5,732
September 1	21	6,293
August 1	22	6,459
July 1	19	5,647
June 1	20	6,762
May 1	18	6,571
April 1	16	5,716
March 1	16	5,470
February 1	14	4,784
January 1	16	5,442
December 1, 1897	19	5,061
November 1	19	4,656
October 1	20	4,636

### Coke and Anthracite Furnaces in Blast Jan. 1, 1900.

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New York	13	6	7,154	7	8,650
New Jersey	6	4	3,002	2	1,200
Spiegel	2	2	450	0	0
Pennsylvania:					
Lehigh Valley	28	21	11,213	7	2,605
Spiegel	1	1	110	0	0
Schuylkill Valley	15	12	8,440	3	1,689
Upper Susquehanna	5	4	3,355	1	600
Lower Susquehanna	10	10	6,201	0	0
Lebanon Valley	13	11	8,440	2	734
Pittsburgh District	28	28	63,975	0	0
Spiegel	2	2	1,421	0	0
Shenango Valley	15	15	21,999	0	0
Western Pennsylvania	19	14	16,172	5	2,120
Spiegel	1	1	978	0	0
Maryland	4	3	6,031	1	250
Spiegel	1	1	270	0	0
Wheeling District	10	10	14,066	0	0
Ohio:					
Mahoning Valley	14	12	19,468	2	2,000
Central and Northern	11	10	17,438	1	700
Hocking Valley	2	2	700	0	0
Hanging Rock	12	10	5,214	2	460
Illinois	16	15	30,270	1	900
Spiegel	1	1	879	0	0
Minnesota	1	1	850	0	0
Wisconsin	4	4	3,834	0	0
Missouri	2	1	862	1	750
Colorado	2	1	1,100	1	1,000
The South:					
Virginia	21	16	9,835	5	2,798
Kentucky	5	4	1,510	1	600
Alabama	38	18	16,254	20	13,615
Tennessee	12	9	5,388	3	2,130
Georgia	2	0	0	2	960
North Carolina	2	1	352	1	400
<b>Totals</b>	<b>318</b>	<b>250</b>	<b>286,729</b>	<b>60</b>	<b>40,261</b>

In comparison with previous months the record of the coke and anthracite furnaces stands as follows in gross tons:

	Number in blast.	Capacity city per week.
January 1, 1900	250	286,729
December 1, 1899	253	289,448
November 1	248	281,409
October 1	241	272,428
September 1	233	261,670
August 1	222	261,483
July 1	217	257,345
June 1	204	249,119
May 1	197	245,249
April 1	188	240,969
March 1	175	223,865
February 1	178	222,672
January 1, 1898	180	227,490
December 1, 1898	177	229,510
November 1	176	222,988
October 1	172	209,908
September 1	165	206,750
August 1	166	200,318
July 1	170	210,664
June 1	176	218,686
May 1	178	227,592
April 1	178	227,628
March 1	177	228,960
February 1	170	223,604
January 1, 1898	172	221,166
December 1, 1897	172	220,962
November 1	164	208,508
October 1	151	195,492
September 1	140	180,951
August 1	132	161,375

During December there was blown out Everett in Western Pennsylvania, while there were banked the five Bessemer furnaces, one Sheffield and the two South Pittsburgh furnaces of the Tennessee Company. Their idleness, however, did not continue far beyond the holidays. There were started, after repairs, in December, one Brooke, Stewart on the Shenango Valley, one Wellston in the Hanging Rock region, Iroquois in Chicago and Woodward in Alabama.

### Furnace Stocks.

The position of furnace stocks, sold and unsold, as reported to us, was as follows on January 1, the same furnaces being represented as in former months. This does not include the holdings of the steel works producing their own iron:

Stocks.	Aug. 1.	Sept. 1.	Oct. 1.	Nov. 1.	Dec. 1.	Jan. 1.
Anthracite and Coke	107,270	107,321	93,250	89,709	94,946	107,231
Charcoal	42,998	30,500	27,291	21,834	18,747	20,115
<b>Totals</b>	<b>150,268</b>	<b>137,821</b>	<b>120,541</b>	<b>111,543</b>	<b>113,693</b>	<b>127,346</b>

### Warrant Stocks.

We are indebted to the American Pig Iron Storage Warrant Company for the following statement of stocks of warrant iron:

Stocks.	Aug. 1.	Sept. 1.	Oct. 1.	Nov. 1.	Dec. 1.	Jan. 1.
Coke and Anthracite	26,800	20,200	14,800	10,300	4,100	3,200
Charcoal	15,700	12,400	7,700	6,100	5,200	1,700
<b>Totals</b>	<b>42,500</b>	<b>32,600</b>	<b>22,500</b>	<b>16,400</b>	<b>9,300</b>	<b>4,900</b>

## MANUFACTURING.

### Iron and Steel.

The West Virginia Steel Company of Wheeling, W. Va., organized in December, 1898, and which took over the plant of the Caldwell & Peterson Mfg. Company of Wheeling, manufacturers of roofing, ceiling and sheet metal specialties, have commenced the erection of a plant in East Wheeling for the manufacture of steel sheets. It will be a six-mill plant, and the entire product will be used by the West Virginia Steel Company in the manufacture of the finished product formerly made by the Caldwell & Peterson Mfg. Company. Work has been commenced on the main building, which is to be 100 x 200 feet, and iron and steel throughout. The building will be erected by the Fort Pitt Bridge Company of Washington, Pa., and work on their construction has been delayed considerably on account of scarcity of structural material. The contract for the sheet mills is to be placed this week, and will go to a Pittsburgh concern.

The Central Steel Company, who are operating the old Premier plant at Indianapolis, Ind., began to turn out open hearth basic steel on the 3d inst. The plant had been idle for a number of years.

The Midland Rolling Mill Company, 860 Old Colony Building, Chicago, are pushing the work of construction on their plant at 973 to 999 Fifty-first avenue, and expect to have it in operation about the middle of February. They will roll angles and rounds from old steel rails, and will later add some sizes of flats.

A dispatch states that prominent business men of Knoxville, Tenn., have joined together to raise \$250,000 to erect a blast furnace for the purpose of working local ores.

The report that the American Tin Plate Company had issued orders for the starting up of the Star and Monongahela plants in the Pittsburgh district, which have been idle for some time, has not been officially confirmed by the company. We can state that the American Tin Plate Company will probably before long be manufacturing tin plate in only three districts. One of these will be the Elwood, Ind., district, another the New Castle, Pa., district, and a third not yet fully decided upon. It has been found that tin plate can be manufactured at a lower cost outside of the Pittsburgh district than in that city.

The Crown Point furnaces, at Crown Point, N. Y., which have been idle since 1892, have been blown in. The property is now controlled by the American Steel & Wire Company.

The Laughlin works of the American Tin Plate Company, at Martin's Ferry, Ohio, which has been idle for some time, resumed operations in part on January 8. This plant contains 14 mills, and it is said that it was in operation only about four months during all of last year.

The electric apparatus in the Standard Seamless Tube Works of Ellwood City, Pa., was completed last Thursday morning, and the machinery started to test the large electric cranes and lights. The cranes operated very successfully, and the promoter, J. G. Fulman of Pittsburgh, is enthusiastic over the outcome. The Carter Electric Company of Pittsburgh had the contract for this work.

The Old Alcalde Furnace, Rusk, Texas, was blown in on January 3.

The Cherokee Furnace of the Alabama & Georgia Iron Company, at Cedartown, Ga., is expected to be blown in January 10.

The Carp Furnace, Marquette, Mich., has been purchased by the Pioneer Iron Company, together with the business of Schaffer & Gray. It will be operated by the Pioneer Iron Company, Carp Furnace Department.

The Everett Furnace, at Everett, Pa., was blown out December 24 for repairs. It is expected to be again in blast about January 15.

The North American Iron Company, with capital, \$5,000,000, were incorporated January 9 at Trenton, N. J., to mine and manufacture iron and other ores. The incorporators are John Ralston, James A. Pierson and William S. Bigelow, all of Elizabeth.

### Machinery.

The Monongahela River Consolidated Coal & Coke Company have decided to erect three electric power houses at different points along the Monongahela River to furnish power for the operation of their mining machinery. The plants will be erected at Gastonville, Brownsville and Monongahela. This concern have placed orders for 35 electric and seven compressed air mining machines, to be used in the mines nearest the proposed power house.

H. C. Harvey & Co., Incorporated, of Brooklyn, N. Y., are taking the necessary legal steps to change the name to the Randolph Iron Company.

The Weimer Machine Works Company of Lebanon, Pa., have the following orders on their books for their cinder cars of 200 cubic feet capacity: National Steel Company, Ohio Works, 6 cars; Carnegie Steel Company, Limited, Rankin, Pa., 24 cars; Dominion Iron & Steel Company, Canada, 15 cars; Empire Steel & Iron Company, Bellefonte, Pa., 1 car; Maryland Steel Company, Sparrow Point, Md., 1 car; Tennessee Coal, Iron & Rail-

road Company, Emsley, Ala., 3 cars; Millom-Askam Hematite Iron Company, Millom, England, 2 cars. They also have a number of cars of smaller capacity for furnaces in Germany and England and for the United States.

The Union Steam Pump Company, Battle Creek, Mich., have in the past 60 days materially increased their plant in floor space, also added numerous machines, and are enabled to increase their output about 25 per cent. The demand for their product continues very brisk and without abatement. All indications point to still larger trade, and this will necessitate improvements and enlargement of facilities. The demands upon them are not limited to domestic trade, but they have recently further advanced their foreign trade, and they expect a very much larger amount of foreign shipments in the future. They look for about 50 per cent increase in 1900 over that of 1899. The increase of business of 1899 over 1898 was 45.6 per cent. Even with increased prices their December sales were nearly 100 per cent. over those of the same month in 1898.

The Stowell Mfg. & Foundry Company, South Milwaukee, Wis., have increased their capital stock from \$60,000 to \$175,000.

The buildings and land formerly used by the defunct Chicago Steel Company have been purchased by the W. A. Jones Foundry & Machine Company, now at 55 to 59 South Jefferson street, Chicago. They have outgrown their facilities for the third time in nine years, and while they will continue to operate their present plant in the manufacture of power transmission appliances, they have found it necessary to secure additional room elsewhere to enable their business to expand, as it should. The property just purchased comprises about 1½ acres of ground, largely covered by substantial brick buildings, which can be easily remodeled to suit the company's necessities. It is located on North avenue, along the tracks of the Chicago & Northwestern Railway Company. They will add to their business the manufacture of machine tools for the production of pulleys and rope transmission sheaves.

The Maywood Foundry & Machine Company, Maywood, Ill., have been incorporated, with a capital stock of \$50,000, to conduct a foundry and machine shop business. The incorporators are F. E. Lonas, I. L. McCord and O. H. Davidson.

The Chicago Pneumatic Tool Company, Chicago, state that their business for the year just closed nearly quadrupled the business for the previous year, and the mail received January 1 brought orders aggregating 100 pneumatic tools. These orders were distributed through many different branches of manufacturing, and covered nearly all their different varieties of tools, including among others an order for an air compressor and a complete outfit of hammers, riveters and drills for the Kawasaki Dock Yards, at Kobe, Japan. Their manufacturing facilities have been taxed to the utmost, and they are now arranging to double the facilities and capacity. The Boyer shops at St. Louis will very shortly move to Detroit, where they will occupy a plant with more than double the capacity of the present shops, and which will be a model machine shop in every particular. They expect also that their Whitelaw shops at St. Louis will be moved to Philadelphia and consolidated with their other shops there, thus affording them a greatly increased output in the line manufactured by them. The year just opening looks bright for manufacturing, and the prospect is that the demand for their tools will not only hold its own, but will be greatly increased.

The Shaw Electric Crane Company, Muskegon, Mich., will have a 30-ton electric traveling crane in the United States Building, at Paris. The capacity of the main hoist is 30 net tons; capacity of the auxiliary hoist, 5 net tons; span, 33 feet; voltage, 220, direct current. This crane is furnished for exhibit by their sales agents, Manning, Maxwell & Moore, 85 to 89 Liberty street, New York.

The Welver Mfg. Company, Philipsburg, Pa., did a very satisfactory business during 1899, and have flattering prospects as to trade of the present year. They have already booked considerable orders, and are receiving many inquiries. They have recently been paying special attention to Southern trade, which has brought satisfactory results.

The Tallerday Steel Pipe Company of Waterloo, Iowa, are a new company just formed for the manufacture of galvanized steel water pipe, under the patents of F. G. Tallerday.

J. K. Purinton, boiler manufacturer and maker of novelties, Des Moines, Iowa, has changed the name of the firm to J. K. Purinton & Co., and taken his son into the business as an equal partner.

The Acme Road Machinery Company of Frankfort, N. Y., have been incorporated with a capital of \$100,000 by Elliot Danforth of New York, P. Pollock of Troy and A. Schaupp of South Bethlehem.

The Morris Machine Works of Baldwinsville, N. Y., have received the contract for supplying the pumps and engines for the dry dock being built in Baltimore by the Wm. Skinner & Sons Shipbuilding & Dry Dock Company of that city. The pumping plant will consist of three 36-inch double suction centrifugal pumps, each driven by a 22 x 20 vertical engine; one 12-inch drainage pump directly connected to a 12 x 10 vertical engine, and all the necessary valves, suction and discharge pipes. The pumps will be required to empty the dock in 90 minutes. The machinery must be erected and in running order by July 1 next.

The Spiral Journal Bearing Company, St. Louis, have, by reason of an increasing trade, secured a larger shop, and are now at 1543 and 1545 North Second street. Their product is machinery and car journal bearings, made of hard and soft metal.

Barringer & Edmondson, proprietors of the Fayetteville Iron Work and Machine Shop, Fayetteville, Ark., have lost their entire plant by fire, but will rebuild at once. They solicit the correspondence of manufacturers and dealers in machine tools, such as lathes, shapers, planers, drill presses, cupola blowers, &c. They request prices on the above in both new and second-hand tools.

The Standard Boiler Tube Cleaner Company of Pittsburgh will apply for a charter on February 5. The incorporators are E. B. McAbee, I. S. McAbee, C. C. King, H. D. Protzman and James Ford.

The James H. Baker Mfg. Company, with offices in the Park Building, Pittsburgh, and works at Tarentum, Pa., and manufacturers of car iron, wagon hardware, air brake forgings, drop forging and pressing, are operating part of their plant on night turn, and it is expected, on account of large orders received, that the entire plant will soon be operated night and day.

The Autocar Company of Pittsburgh, with nominal capital of \$1000, were chartered last week. The company have broken ground for a plant at Hawkins Station, on the Pennsylvania Railroad, near Pittsburgh, and will manufacture automobiles, with both electric and gasoline motors. The company take over the business of the Pittsburgh Motor Vehicle Company. The directors are Chas. J. Clarke, Wm. Morgan, F. K. Fitler, Louis S. Clarke and J. D. Lyon, all of Pittsburgh.

#### Hardware.

The plant of the Continental Wire Company, located at Granite City, Ill., will shortly be sold under an order of the Federal Court at Springfield, Ill., obtained by D. R. Wolfe of St. Louis, president of the company, and also of the Merchants' Wire & Nail Company. This sale will not affect in any way the lease under which the Merchants' Wire & Nail Company are now operating the plant.

#### Miscellaneous.

The Reese-Hammond Fire Brick Company of Pittsburgh are making large additions to their Bolivar works and also to their West Virginia works.

The American Pipe & Foundry Company have been formed by William G. Price, a former pipe manufacturer; Francis J. Torrance, treasurer of the Standard Mfg. Company; Charles A. Painter of the American Steel Hoop Company and Export Iron & Steel Company, and William B. Scaife of William B. Scaife & Sons Company, all of Pittsburgh, and soil and plumbers' pipe will be manufactured on a large scale. The capital of the company has been placed at \$250,000, but it is the intention to develop the business into large proportions. The new company will take over the old works of the Berlin Iron & Lead Works, of the old William G. Price Company, at Jeannette, remodel and improve them, and place 250 men at work early in the new year. The new company will make at the start about 30 tons of soil and plumbers' pipe daily, the six sizes varying from 2 to 14 inches. It is expected that extensive additions and enlargements will be made during the next year and that the new concern will become one of the largest of their kind in the country. Mr. Price will be president of the new company. He formerly was actively engaged in the soil pipe business, operating the Jeannette works and a large plant on Smallman street, Pittsburgh.

The Driver-Harris Wire Company, Newark, N. J., have been incorporated, with a capital of \$30,000, for wire manufacture. The incorporators are W. B. Driver, F. L. Driver, F. R. Harris, J. E. Bugbee.

Dodge Machine Screw Company have moved into larger and better adapted quarters at 154 Pearl street, Boston, Mass., having tripled their capital and installed new machinery of the very latest patterns adapted to their special line of work. The company are prepared to make special turned or punched metal parts for manufacturers of automobiles, telephones, novelties, &c., and for light machinery of every description. They state that they are now making by contract tool steel bearings and other small turned parts used in the well-known Stanley carriage.

The creditors of the Columbia Iron Works & Dry Dock Company of Baltimore, Md., who recently went into the hands of a receiver, have agreed that Receiver Henry A. Parr should be allowed six months to finish the work in hand and also to accept new work if it can be finished within that period. It is reported that plans are being quietly prepared for the organization of a new company to acquire the plant and start a shipbuilding industry on a larger scale than before.

Fire in the sash weight foundry of E. E. Brown & Co., Mc-Kean and Meadow streets, Philadelphia, on December 30 partly gutted the building, inflicting a loss of \$7000.

A dispatch states that the management of La Discubridora Mine, 30 miles west of Mapimi in the State of Durango, Mexico, has contracted with the El Paso Foundry & Machine Company for two new furnaces of 300 tons capacity each, so that when completed the smelting capacity of this mine will be 1050 tons

per day. Report says the company will build a railway from Mapimi to the mine.

The Magnus Metal Company of 100 Broadway, New York, have filed articles increasing their capital stock from \$1,200,000 to \$3,000,000.

The Forsyth Pattern Works, Youngstown, Ohio, manufacturers of machine and architectural patterns of all descriptions, have secured an order for the patterns for a set of blowing engines, 42 x 80 inches and 84 x 60 inches.

The Clinton County Fire Brick Company, Mill Hall, Pa., are putting up new works at Monument, Pa., on the line of the New York Central Railroad. The works at Mill Hall are kept running to their fullest capacity.

The Rochester Stamping Company, Rochester, N. Y., have been incorporated for the manufacture of metal goods and hardware specialties. The capital is \$300,000, and the directors are M. F. Robeson, Geo. W. Robeson, A. R. Pritchard and others.

The Warren Electric & Specialty Company, at Warren, Ohio, have decided to double their capital stock, making it \$200,000. T. H. Gilmer was elected president; C. H. Angstadt, vice-president, and E. M. Gilmer, secretary and treasurer.

At the recent stockholders' meeting of the York Mfg. Company, at York, Pa., it was voted to increase the capital stock from \$600,000 to \$1,000,000.

The American Car & Foundry Company have placed an order with the Pressed Steel Car Company of Pittsburgh for 2750 Fox pressed steel trucks for Lehigh Valley box cars, and the Southern Car & Foundry Company have ordered 500 Fox body bolsters for the Southern Railroad. The truck and bolster department of the Pressed Steel Car Company is crowded with work.

The large steel frame palace which is being constructed for the Crown Prince of Japan contains over 72,000 square feet of floor area. Corrugated arches of No. 16 gauge steel are to be placed between the floor beams. About 125 tons of curved corrugated steel sheets, manufactured by Wm. B. Scaife & Sons, Pittsburgh, Pa., will be required in this connection.

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The Youngstown Range & Stove Company, incorporated last year in Youngstown, Ohio, will build a plant in Hazelton, for the manufacture of stoves and ranges. The plant will be located on land adjoining the works of the Youngstown Iron & Steel Roofing Company, and the main building will be 100 x 50 feet and two stories high. The concern expect to occupy their new quarters about April 1. John O. Pew is president and general manager, and Mason Evans secretary and treasurer of the concern. Mr. Pierce, formerly with the Warren Range Company, has resigned his position with that concern and has been made superintendent of the Youngstown Stove & Range Company.

A number of men employed as switchmen by the Pressed Steel Car Company, at their works in Allegheny, have gone out on strike for an advance in wages.

The Cleveland Twist Drill Company of Cleveland, Ohio, advise us that they will have an exhibit at Paris.

The Mercer Valley Railroad Company have been incorporated to build a line in Mercer County, Pa., three miles long, to intersect with the Erie & Pittsburgh Railroad. F. H. Buhl of Sharon is president, and the directors are William Flinn, Geo. W. Darr of Pittsburgh, John Stevenson, Jr., and David Adams of Sharon, Pa. This new concern are an identified interest of the Sharon Steel Company. The South Sharon Water Company have also applied for a charter. This concern are also an identified interest of the Sharon Steel Company.

The E. W. Bliss Company of Brooklyn were omitted from the list of exhibitors at the Paris Exposition. They have secured 560 square feet at Vincennes and 288 square feet at the Champ de Mars.

The railroad men of the Southwest branch of the Pennsylvania Railroad, running through the Connellsburg coke region, claim a world's record in coke and coal traffic for 10 hours. On Friday night, December 29, 1000 cars laden with coke passed the junction during the night. The coke business on the line has been increasing so fast for the past few weeks that there are fears of a blockade. To move the 1000 cars on the night in question 35 trains were required. On the trains were 240 men, consisting of 70 firemen, 70 brakemen, 35 conductors and 35 flagmen.

At a meeting of the Inguaran Copper Company held in Paris, France, the capital stock of the corporation was increased to \$10,000,000. The company, of which the bulk of the stock is owned by the Rothschilds, own the Inguaran copper mines in the State of Michoacan, Mexico.

## The Iron and Metal Trades.

Owing to the fact that a considerable number of Southern blast furnaces were banked during the holidays, our blast furnace returns for the first of this month show that productive capacity entered the new year at a smaller rate than it was early in December. This, however, is only a temporary matter, but it illustrates how a minor cause promptly knocks down record figures. It is noted that the majority of the districts show a slight increase in the stocks, but this is really so insignificant that it is not worthy of serious consideration. Slowly a number of additional stacks are getting ready for work, and the output is likely to go on increasing—provided, however, that there be no accidents. Just now the fuel supply is getting to be serious. We hear of banking now, and there is much significance, too, in the report that the famous Edgar Thomson Coke pile must be drawn upon. In other words, the least derangement in the clockwork movement in the Pig Iron industry promptly checks the current enormous production.

In Foundry Irons the market is practically at a deadlock. Important consuming interests are holding off to test the resistance of makers, while the majority of the latter are indifferent. There are soft spots in the market, however, and lower figures have been made to good buyers for moderate sized lots. It is a fact, however, on the other hand, that large melters of Iron have been feeling the market, and seem inclined to take advantage of any bargains offered. As yet few opportunities have been offered.

The Steel market is exceedingly dull. There are reports of sales of Southern Open Hearth Billets in the Eastern market, but this has not touched the great consumers, who are still uncovered for a very large share of their requirements for the first half of this year. The leading makers of the country present an unbroken front.

In Finished Material there is some stiffening, notably in the West, where an understanding among leading interests seems to have been reached on the prices of Bars and of Skelp.

A better feeling prevails in the Sheet trade. Isaac W. Frank of Pittsburgh has again been appointed to receive options on the Sheet mills, and has a number of them, which expire on April 1. It seems that even if some large interests in the Pittsburgh district do not join, the work of consolidation is to go forward.

In Structural Material and in Plates business has been rather quiet lately. An interesting contract is coming up, and that is for 13,000 tons of Bridge work for a leading trunk line—a fact which is cited as a proof that present prices do not frighten large consuming interests.

Since the opening of the year a considerable number of announcements of increases in wages have been made. In nearly every case they deal with very large bodies of men, who are thus sharing in the prosperity of the Iron trade.

## A Comparison of Prices

At date, one week, one month and one year previous.

**Advances Over the Previous Month in Heavy Type.  
Declines in Italics.**

	Jan. 10, 1900.	Jan. 3, 1900.	Dec. 13, 1899.	Jan. 11, 1899.
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### PIG IRON:

Foundry Pig, No. 2, Standard, Philadelphia	\$23.00	23.25	23.25	\$11.50
Foundry Pig, No. 2, Southern, Cincinnati	20.25	20.50	20.50	...
Foundry Pig, No. 2, Local, Chicago	23.50	23.50	23.50	11.00
Bessemer Pig, Pittsburgh	24.90	24.90	24.90	10.85
Gray Forge, Pittsburgh	21.25	21.25	21.00	9.65
Lake Superior Charcoal, Chicago	25.50	25.50	25.00	11.50

### BILLETS, RAILS, ETC.:

Steel Billets, Pittsburgh	35.00	35.00	34.00	16.50
Steel Billets, Philadelphia	37.50	37.50	36.00	18.90
Steel Billets, Chicago	38.00	nom	37.00	18.25
Wire Rods, Pittsburgh	nom	50.00	...	23.00
Steel Rails, Heavy, Eastern Mill	35.00	35.00	35.00	18.00
Spikes, Tidewater	2.65	2.65	2.65	1.40
Splice Bars, Tidewater	2.30	2.30	2.35	1.05

### OLD MATERIAL:

O. Steel Rails, Chicago	18.00	19.00	20.00	8.00
O. Steel Rails, Philadelphia	20.00	21.00	23.00	11.25
O. Iron Rails, Chicago	25.00	25.00	26.00	12.75
O. Iron Rails, Philadelphia	26.00	27.00	27.00	13.25
O. Car Wheels, Chicago	21.00	21.00	21.00	11.50
O. Car Wheels, Philadelphia	20.50	20.50	21.00	10.50
Heavy Steel Scrap, Chicago	18.00	18.00	18.00	7.75

### FINISHED IRON AND STEEL:

Refined Iron Bars, Philadelphia	2.20	2.20	2.20	1.15
Common Iron Bars, Youngstown	2.15	2.15	2.10	1.15
Steel Bars, Tidewater	2.40	2.35	2.40	...
Steel Bars, Pittsburgh	2.25	2.20	2.20	...
Tank Plates, Tidewater	2.60	2.40	2.50	1.35
Tank Plates, Pittsburgh	2.25	2.25	2.35	1.30
Beams, Tidewater	2.40	2.40	2.40	1.40
Beams, Pittsburgh	2.25	2.25	2.25	1.30
Angles, Tidewater	2.40	2.40	2.40	1.30
Angles, Pittsburgh	2.25	2.25	2.25	1.20
Skelp, Grooved Iron, Pittsburgh	2.10	1.90	1.95	1.07 $\frac{1}{4}$
Skelp, Sheared Iron, Pittsburgh	2.35	2.30	2.35	1.23 $\frac{1}{4}$
Sheets, No. 27, Chicago	3.00	3.00	3.00	2.00
Sheets, No. 27, Pittsburgh	2.80	2.80	2.85	1.85
Barb Wire, f.o.b. Pittsburgh	3.80	3.80	3.55	1.90
Wire Nails, f.o.b. Pittsburgh	3.20	3.20	2.95	1.45
Cut Nails, Mill	2.50	2.50	2.45	1.20

### METALS:

Copper, New York	16.19 $\frac{1}{4}$	16.00	16.75	13.62 $\frac{1}{4}$
Splelter, St. Louis	4.30	4.35	4.60	4.85
Lead, New York	4.70	4.70	4.65	3.90
Lead, St. Louis	4.65	4.65	4.60	...
Tin, New York	25.50	25.50	26.00	22.00
Antimony, Hallett, New York	9.75	9.75	9.75	8.75
Nickel, New York	38.00	38.00	38.00	38.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York	4.84	4.84	4.84	3.15

## Chicago. (By Telegraph.)

Office of *The Iron Age*, 805 Fisher Building, CHICAGO, January 10, 1900.

It is a noticeable fact that consumers instead of being aggressively bearish are interested in the maintenance of present prices. This is particularly true of those manufacturing implements and other highly finished products. They are now expecting second orders for the approaching season, which will come in rapidly if prices are maintained, but will undoubtedly be withheld if values recede. Prices of finished products have been advancing quite gradually and in many cases are not up to corresponding fully with costs of raw material, but will be if values are maintained for a little while longer. Influences of this kind are strongly operative just now when the general market is disposed to be quiet.

**Pig Iron.**—Some inquiries are being received for deliveries during the first half of this year, but the volume of business actually closed has been light. Local producers are making heavy shipments on contracts and are considerably behind on deliveries. Lake Superior Charcoal is strong and very little is to be had from any of the standard companies. Southern sales agents report a firm front on the part of their principals, with the leading companies so well sold up as to have very little Iron available for the whole of this year. A few of the smaller concerns may get uneasy at the lull in trade, but it is believed that any Iron they may have for sale will quickly be taken by consumers who are not getting deliveries as fast as they wish on old contracts. A renewed buying movement is expected shortly, as consumption is very heavy and the full requirements of the foundry trade are by no means covered. We quote for cash as follows:

Lake Superior Charcoal	...	\$25.50 to \$26.00
Local Coke Foundry, No. 1	...	24.50 to 25.00
Local Coke Foundry, No. 2	...	23.50 to 24.00
Local Coke Foundry, No. 3	...	22.50 to 23.00
Local Scotch, No. 1	...	25.00 to 25.50
Ohio Strong Softeners, No. 1	...	25.50 to 26.00
Southern Slagery, according to Silicon	...	25.50 to 27.00
Southern Coke, No. 1	...	22.85 to 23.35
Southern Coke, No. 2	...	21.85 to 22.35
Southern Coke, No. 3	...	20.85 to 21.30
Southern Coke, No. 1 Soft	...	21.85 to 22.35
Southern Coke, No. 2 Soft	...	21.85 to 22.35

Foundry Forge.....	20.85 to .....
Gray Forge and Mottled.....	20.85 to .....
Southern Charcoal Softeners, according to Silicon.....	21.85 to 25.85
Alabama and Georgia Car Wheel.....	24.85 to 25.85
Malleable Bessemer.....	25.00 to 26.00
Standard Bessemer.....	..... to .....
Jackson County and Kentucky Silvery, 8 per cent. Silicon.....	32.00 to 32.50

**Bars.**—The Bar Iron situation is still encouraging to sellers. Contracts are being placed at full prices by jobbers and manufacturing consumers, whose orders, while not large, are nevertheless sufficiently numerous to make a good volume of business. Independent mills are so well filled up with orders that few of them are making quotations in this market. Soft Steel Bars are quiet but firm. The recent weakness in Steel has disappeared, and the best buyers are unable to secure any further concessions. Many inquiries are being received, evidently from parties trying to find points of weakness, of which they can take advantage. An active trade is expected before the month closes. Mill shipments are quoted at 2.30c. to 2.40c., Chicago, for Common Iron; 2.35c. to 2.45c. for Soft Steel Bars, and 2.65c. for Bands. Jobbers have had a much better trade from stock, and their carload business has also shown improvement. They quote small lots from stock at 2.90c. upward for Bar Iron, 2.65c. upward for Soft Steel Bars, and 3.40c. to 4c. for Norway and Swedish Iron.

**Car Material.**—The demand for new cars is increasing, car builders being in receipt of orders for cars for a variety of service. The car builders are seeking particularly for Steel Axles and finding difficulty in placing further orders, as the Axle works are sold far into the future.

**Structural Material.**—Orders for small lots of Shapes have shown a little improvement, but in a general way the market is quiet. Some of the building projects recently mentioned have been shelved for a time, having encountered obstructions in leases and in other directions which will take some time to adjust. New enterprises are coming up, which will take their place, so that the outlook for the year is still of a promising character. Prices are firmly held, and Universal Plates have been marked up \$1. Mill shipments are quoted as follows, Chicago delivery: Beams, Channels and Zees, 15-inch and under, and Angles, 3 to 6 inches, 2.40c.; Beams, &c., 18 inches and over, and Angles over 6 inches and under 3 inches, 2.50c.; Tees, 2.45c.; Universal Plates, 2.65c. to 2.75c. The local yards continue to have a good trade in small lots.

**Plates.**—The demand is light for both mill shipments and for small lots from jobbers' stocks. Mill shipments, Chicago delivery, are quoted as follows: Tank, 2.70c. to 2.75c.; Flange, 3c. to 3.10c.; Marine, 3.30c. to 3.50c.; Fire Box, 3.30c. to 5c.; Jobbers quote Tank from store at 3c. to 3.15c., and Flange, 3.25c. to 3.50c.

**Merchant Pipe.**—The local situation is unchanged, the demand at this time running quite light. Manufacturers of Merchant Ship and Boiler Tubes are expected to make some change in prices this week, but meanwhile carload lots are quoted at 50, 10 and 5 to 50 and two 10's, while less than carloads are selling at 50 and 10 to 50, 10 and 5 per cent. Merchant Steel Boiler Tubes are quoted as follows: 1½ to 1¾ inch, 35 per cent. off on Steel or Iron; 2 to 2½ inch, 50 per cent. off on Steel and 45 per cent. off on Iron; for 3-inch and larger, 52½ per cent. off on Steel, 47½ per cent. off on Iron.

**Sheets.**—A somewhat better inquiry has recently been noted, but it is mainly for small lots. Buyers are not disposed to place orders as far ahead as usual. The movement to consolidate the Sheet mills is making progress, and it is likely that within the coming month something may be accomplished in this direction. Mill shipments of No. 27 Black are quoted at 3c. to 3.15c., Chicago, and Galvanized Sheets at 75 to 75 and 5 per cent. Jobbers are finding a better demand from stock and quote small lots at 3.25c. to 3.45c. for No. 27 Black and 70 and 10 to 70 and 15 per cent. off on Galvanized Sheets.

**Merchant Steel.**—A little better tone to business is reported. The sales of the past week were larger than for some time previous, although trade can hardly be called active. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.95c. to 3.05c.; Smooth Finished Tire, 2.80c. to 3c.; Open Hearth Spring Steel, 3.60c. to 3.75c., base; Toe Calk, 3.20c. to 3.50c., base; Sleigh Shoe, 2.75c. to 3c.; Cutter Shoes, 3.45c. to 3.65c.; Ordinary Tool Steel, 7c. to 7½c.; Special, 13c. and upward. Jobbers are quoting from store: Crucible Spring Steel, 6c. rates; Open Hearth Spring Steel, 5c.; Smooth Machinery Steel, 5½c.; Toe Calk Steel, 4c.

**Billets and Rods.**—Some sales of Bessemer Billets in carload lots have been made at \$38. Inquiries for Rods are being received, but none of the local makers have any for sale. No quotations are available.

**Balls and Track Supplies.**—A great deal of inquiry

is being received for Standard Section Rails, but actual transactions have been small. Prices are held at \$35 to \$40, according to quantity. Quite an inquiry is noted for light sections from Mexico and South Africa. They are quoted at \$35 to \$45, according to section. Prices of Track Fasteners are as follows: Steel Fish Plates, 2.25c. to 2.50c.; Iron Fish Plates, 2.30c. to 2.50c.; Spikes, 2.65c. to 2.75c.; Track Bolts, with Hexagon Nuts, 3.95c. to 4c.; Square Nuts, 3.80c. to 3.85c.; Steel Links and Pins, 3.20c.; Iron Links and Pins, 3.15c.

**Old Material.**—The best demand is observed for Old Steel Rails and Heavy Melting Steel Scrap. A fair business is also being done in Cast Scrap. Stock for rolling mill use is in largest supply and consumers are still holding off. Offerings of this class of material are increasing daily. Approximate market prices are as follows per gross ton:

Old Iron Rails.....	\$25.00 to \$25.50
Old Steel Rails, mixed length.....	18.00 to 19.00
Old Steel Rails, long lengths.....	21.00 to 22.00
Relaying Rails.....	28.00 to 30.00
Old Car Wheels.....	21.00 to 22.00
Heavy Melting Steel Scrap.....	18.00 to 19.00
Mixed Steel.....	13.50 to 14.00

Following prices are per net ton:

No. 1 Railroad Wrought.....	\$21.50 to \$22.50
No. 1 Railroad Track.....	18.00 to 19.00
Dealers' Forge.....	15.00 to 15.50
Iron Fish Plates and Angle Bars.....	22.50
Steel or Mixed Iron and Steel ditto.....	18.50 to 19.00
No. 1 Cut Mill, for busheling.....	12.00 to 13.00
Pipes and Flues.....	12.00 to 13.00
Heavy Cast.....	12.50 to 13.00
Stove Plate.....	8.00 to 9.00
Railroad Malleable Cast.....	15.00 to 15.50
Agricultural Malleable Cast.....	14.00 to 14.50
Iron Car Axles.....	21.50 to 22.00
Steel Car Axles.....	22.00 to 23.00
Horseshoes.....	15.50 to 16.00
Cast Borings.....	9.00 to 9.50
Steel Car Axle Turnings.....	11.00 to 11.50
Iron Car Axle Turnings.....	12.00 to 13.00
Machline Shop Turnings.....	10.00 to 10.50
Old Boilers, Iron, whole.....	7.00 to 8.00
Old Boilers, Iron, cut.....	11.00 to 12.00
Old Boilers, Steel, whole.....	6.00 to 7.00
Old Boilers, Steel, cut.....	10.00 to 11.00

**Metals.**—Lake Superior Copper is a shade weaker and quoted in carload lots at 16½c. Casting brands are held at 16½c. Spelter has fallen to 4.45c. Pig Lead is firm and unchanged at 4.70c. for Desilverized for January.

**Tin Plates.**—Manufacturers are behind on deliveries, owing to the fact that many of their customers who were slow in sending in specifications are now asking for shipments all at once. The mills are now crowded to make the deliveries desired. Jobbers report only a reasonable demand. It is perhaps better than usual at this time, but is nevertheless of only moderate volume. It is remarkable that a continued good demand is found for furnace sizes. Prices are unchanged.

W. C. Brown, 36 La Salle street, Chicago, has discontinued his connection with Wells Bros. & Co., Greenfield, Mass. He will in the future represent, as heretofore, the Cleveland Twist Drill Company, Cleveland, Ohio, and the Reeves Iron Company, Canal Dover, Ohio, and in addition to these the Wiley & Russell Mfg. Company, Greenfield, Mass.

The business of the Universal Construction Company having been transferred to the Illinois Steel Company, it will be continued as the structural department of the Illinois Steel Company under the immediate supervision of W. H. Pratt as manager, at North Works, 50 Wabash avenue, Chicago, Ill.

## Philadelphia.

Office of *The Iron Age*, Forrest Building,  
PHILADELPHIA, PA., January 9, 1900.

(By Telegraph.)

The market is something of a disappointment in its continued dullness, which is still a very prominent feature. An equally important point, however, is the firmness in prices which up to this date have been most firmly maintained, and so far as can be seen appear likely to continue so indefinitely. It would be pleasant to record a more active market, but the facts are as above stated, but a great deal of confidence is expressed in regard to the final outcome. No change in prices and no sales except of the usual routine character.

(By Mail.)

The market is still in a somewhat somnolent condition, so that there is not much to be said except in the usual routine order. The significant feature of the situation is that prices are practically the same as they were a month ago. The dullest season of the entire year is rapidly fading away, and as prices have been maintained during that period it is hardly likely that they will decline

when the market becomes more active, as it is likely to be in the course of the next two or three weeks. Still as regards the immediate situation buyers are very apathetic, but so long as mills and furnaces have plenty of work to go on with (as they have at present) sellers are not likely to worry much in regard to a temporary falling off in the demand.

**Pig Iron.**—The situation in Pig Iron appears to be very strong, although at present it is far from active. The indisposition to make new engagements is as marked as it has been at any time during the past month, but makers appear to be confident of their position and are not inclined to make the slightest concession from the figures last quoted. All the Iron made is promptly taken, with the possible exception of off grades, and that made by furnaces recently blown in, quality of which may be a little uncertain, but whether it be so or not, prices have to be made something below the regular rate before it can be placed with any freedom. In the present condition of affairs nothing can be said beyond what has been said in recent reports—viz.: that prices are steady, that the demand is slow, but if the next turn in the market is to be in the direction of greater activity it will in all probability be also toward a further stiffening in values. In special Irons there is nothing doing and prices are nominal. No. 1 X Foundry, \$25 to \$25.50; No. 2 X Foundry, \$23.25 to \$24.25; No. 2 Plain, \$22.25 to \$22.75; Standard Mill Iron, \$20.25 to \$21; Basic, \$22.75 to \$23; Bessemer, nominal, \$25 to \$26, in low Phosphorus, \$27 to \$28, f.o.b. cars furnace.

**Muck Bars.**—There is nothing doing, and prices are entirely nominal at about \$30.50, f.o.b. cars seller's mill.

**Billets.**—Prices are firm at \$37.50 to \$38, but buyers are not satisfied with the situation, and therefore take only such small lots as are necessary to cover immediate requirements.

**Structural Material**—There is a fair demand, and prices are firm at the official quotations. It is easier to get deliveries, however, so that the premiums which were so regularly paid during the summer and fall months are no longer in evidence. Mills have plenty of work, however, and prospects indicate continued activity and steady prices. Prices as last quoted, viz. (seaboard or nearby deliveries): Beams and Channels, 15 inches and under, 2.40c.; Angles, 3 to 6 inches, 2.40c.; Zee Bars, 2.40c., f.o.b. Philadelphia; Angle Bulbs and Deck Beams, 2.63c.; Tees, 2.45c.

**Bars.**—There is quite a heavy demand for Bars, and as a rule prices are steady, particularly on the small sizes. There appears to be an excess of capacity for supplying the larger sizes, consequently prices on such are anywhere from 10c. to 15c. lower, particularly if the order is attractive as regards tonnage and delivery. There is no change in the official quotations of the Eastern Bar Iron Association, but as already said, buyers find ways and means of doing something better by shopping around. Quotations for Philadelphia or nearby deliveries are as follows: Ordinary Iron, 2.10c. to 2.15c.; Refined Iron, 2.20c.; Test Iron, 2.30c.; Steel Bars, 2.50c. to 2.60c.

**Plates.**—There is a fair demand for Plates, but the point has not been reached when it can be said that prices are strong. They are strong at a certain point, but the difficulty is to know just how far down to go to reach it. Manufacturers consider 2.50c. at mill as low as they ought to go, and a great deal of business is being done at that figure and better, but when 1000-ton lots are wanted it is a question whether they should go below that figure or not. Some might do it under great temptation, but the figure once broken is not easily recovered. Prices may be high enough at 2.50c., but in proportion with labor and other items which enter into the cost of production 2.50c. is low enough. Prices for seaboard or nearby deliveries are about as follows: Steel Plates,  $\frac{1}{4}$ -inch and thicker, 2.50c. to 2.60c.; Shell, 2.65c. to 2.70c.; Flange, 3c.; Fire Box, 3.25c.; Charcoal Iron Plates, C. H. No. 1, 3c.; Best Flange, 3.50c.; Fire Box, 4c.

**Sheets.**—There is not much to report in this line, business being quiet, as it is usually at this season of the year: Prices about as follows for small lots. Best makes are quoted as follows (Common Sheets two-tenths less): No. 10, 2.90c. to 3c.; No. 14, 3.10c.; No. 16, 3.15c.; Nos. 18-20, 3.20c.; Nos. 21-24, 3.30c.; Nos. 26, 27, 3.40c.; No. 28, 3.50c. to 3.60c.

**Old Material.**—There is a little more life in some articles, but the market is still difficult to quote for reasons which are well understood by those in the trade. Bids and offers are about as follows for deliveries in buyers' yards: Choice Railroad Scrap, \$23 to \$26; No. 1 Yard Scrap, \$19 to \$20; No. 2 Light Scrap, \$13 to \$14; Machinery Cast, \$17.50 to \$18.50; Heavy Steel Scrap,

\$20 to \$21; Old Iron Rails, \$26 to \$28; Old Steel Rails, \$21.50 to \$22.50; Wrought Turnings, \$15 to \$15.25; Cast Borings, \$13.50 to \$14.25; Old Car Wheels, \$20.50 to \$22; Iron Axles, \$26 to \$28; Steel Axles, \$27 to \$29.

A new firm under the style of Carter, Donlevy & Co. have engaged in the Tin Plate and Metal jobbing business in Philadelphia. The concern are composed of Warren Carter and Walter H. Donlevy, both of whom for many years have been connected with the well-known house of W. F. Potts, Son & Co. They have leased the building 44 North Tenth street, which is in the heart of the city, where they intend to carry a full line of everything required by a tinner, roofer or furnaceman.

## Pittsburgh.

Office of *The Iron Age*, Hamilton Building, Pittsburgh, January 10, 1900.

(By Telegraph.)

**Pig Iron.**—The Pig Iron market is extremely quiet and hardly enough Iron is being sold to establish a price. However, the market is very strong and the minimum price of Bessemer is \$24, Valley furnace, and several small lots have sold at \$24.10. Gray Forge is firm at \$20.75 to \$21, Valley, and \$21.25 to \$21.50, Pittsburgh. There is considerable Foundry Iron being sold, and Southern Brands are offered at \$22.35 to \$22.50, Pittsburgh. Northern Irons are higher and are being sold at \$23 to \$23.25, Pittsburgh. We quote: Bessemer, \$24; Gray Forge, \$20.75 to \$21, both at Valley furnace; No. 2 Foundry, \$22.35 to \$22.50 for Southern; \$23 to \$23.25 for Northern; Gray Forge, \$21.25 to \$21.50; Bessemer, \$24.90 to \$25, all f.o.b. Pittsburgh. We note a sale of 1000 tons and another of 1500 tons of Bessemer, both for first quarter, at \$24.10 Valley, equal to \$25, Pittsburgh.

**Steel.**—The market is very dull and hardly enough Steel is changing hands to fix a price. Small lots of 100 to 300 and 400 tons are being sold at about \$35, Pittsburgh. On a large tonnage and nice specifications, it is probable better could be done. Consumers of Steel are holding off, waiting for lower prices.

**Sheet Bars.**—There is practically nothing doing, but it is believed that some of the Sheet mills will have to buy before long. The leading interest is quoting \$36 at mill for long lengths.

**Muck Bars.**—We note a sale of 500 tons of Standard grade Muck Bar at \$32.50, Pittsburgh. Some sellers are asking \$33 and higher.

**Spelter.**—We quote prime grades of Western Spelter at 4.60c., Pittsburgh.

(By Mail.)

The situation is remarkable in the fact that prices are comparatively strong, while business is about as quiet as it possibly could be. The expected buying movement, to develop after the first of the year, has not yet materialized, and it is evident that very little new tonnage is being placed. Buyers are apprehensive of lower prices, and when compelled to come into the market and replenish stocks are buying only from hand to mouth. This applies to everything from Billets right through finished product. The strongest item on the whole list is Coke, which can hardly be had at any price, and we hear that up to \$4 a ton has been offered for Furnace Coke for spot shipment and declined, for the reason that the party to whom the offer was made could not possibly spare the Coke. The large concerns in the Iron trade are confident that buying will be better before long, but admit that at the present time the situation is extremely quiet.

**Ferromanganese.**—Ferro is very scarce, and small lots readily bring \$125 a ton.

**Plates.**—The volume of business is light, but improvement is expected before long. Prices have shown no material change, being neither higher nor lower. Some low prices continue to be made on narrow Plates by some of the smaller mills that are badly in need of tonnage. We continue to quote Tank,  $\frac{1}{4}$ -inch and heavier, 2.25c. to 2.50c., the low price for narrow widths; Shell, 2.50c. to 2.60c.; Flange, 2.60c. to 2.70c.; Marine, 2.70c. to 2.80c.; Fire Box, 3c. to 3.25c., depending on quality. As before noted, it is probable that for good orders for Tank Plate for sizes up to 60 inches wide our quotation of 2.25c. might be shaded by some mills.

**Beams and Channels.**—A fair amount of tonnage has been closed in the past week. The mills generally are filled up for the next two or three months and the outlook is very good. We quote: Beams and Channels, 15-inch and under, 2.25c.; 18, 20 and 24 inch, 2.35c.; Angles, 3-inch and up to 6 x 6, 2.25c.; Angles, under 3-inch, 2.50c.; Tees, 3-inch and larger, 2.30c.; under 3-inch, 2.50c.; Zees, 3-inch and larger, 2.25c.; Grooved Rolled Plates, 2.50c., Pittsburgh.

**Sheets.**—There is a good deal of inquiry for Black Sheets, but the mills generally are refusing to sell, except for January and February delivery, for the reason that at present prices of Sheets they would show a loss based on \$36 Bars. Buyers are willing to place orders for delivery running up to August and September at present prices, but the mills are not willing to sell. We continue to quote No. 27 Black Sheets, one pass, at 2.80c. to 2.90c.; No. 28, 2.90c. to 3c. We are advised that Black Sheets have sold in the last few days at our higher prices. We quote Galvanized Sheets at 75 and 10 per cent., 15c. freight. Some mills are holding for higher prices.

**Bars.**—The volume of business being placed in both Iron and Steel Bars is light, but a heavier tonnage is expected before this month is out. Buyers generally are placing orders only for immediate requirements. We quote Common Iron Bars at 2.15c. Valley Mill, and Steel Bars at 2.25c. Valley mill. Local mills quote Steel Bars at 2.25c. to 2.40c., and high grade Iron Bars at 2.40c. to 2.50c., half extras.

**Steel Rails.**—The Carnegie Steel Company, Limited, are reported to have booked a contract for 30,000 tons of Steel Rails for the Chicago & Northwestern Railway. We quote at \$35, at mill, for Standard Sections.

**Merchant Steel.**—This is the dull season in this trade, and tonnage being placed is very light. There is no change in prices, and we quote: Toe Calk, 2.75c., base; Tire, 2.75c., base; Open Hearth Spring, 3.25c. to 3.50c.; Plow Slabs, 3-16 and heavier, 2.75c. to 3c.; Bessemer Machinery, 2.75c. to 3c.; Sleigh Shoe, 2.75c. to 3c.; Cutter Shoes, tapered and bent, 3.75c. to 4c.; Cant Hook Steel, Open Hearth, 4c. to 4.25c.; Crucible, 5c. to 5.25c.; Tool Steel, 7c. and upward, freight allowance not to exceed 25c. Terms, net cash 30 days.

**Skelp.**—The Skelp market is reported to be showing some improvement in demand and in price. We are advised that two leading makers are holding both Iron and Steel Grooved Skelp at 2.15c. at mill, and Sheared Iron and Steel Skelp is quoted at 2.35c. to 2.40c. High grade Steel Skelp for Boiler Tubes is held at 2.25c. to 2.35c., maker's mill.

**Pipes and Tubes.**—The volume of business in Tubular goods so far in January compares very favorably with the previous two months. We quote Merchant Pipe in carloads at 50, 10 and 10 per cent. discount delivered. We continue to quote Screw and Socket Joint Casing at 37½ per cent.; Insert Joint, 32½ per cent., with an optional 5 per cent. to dealers. Demand for Boiler Tubes is large and the market is strong. We quote: 1¼-inch and 1½-inch Iron, 40 per cent.; Steel, 40 per cent.; 1¾ to 2½ inch Iron, 50 per cent.; Steel 55 per cent.; 2¾-inch and larger Iron, 52½ per cent.; Steel, 55 per cent., with an extra 5 per cent. in carloads; less than carloads, f.o.b. maker's mill, Pittsburgh, while carloads are delivered.

**Connellsville Coke.**—Records for production of Coke, shipments and prices are being made at the present time that have never before been equaled. Last week out of 19,689 ovens in the Connellsville region, 18,813 were active and only 876 idle, the production being 188,920 tons, a falling off on account of the holidays. The H. C. Frick Coke Company will erect more ovens at United and 50 at Oliphant. Other smaller operators are also figuring on building new ovens, and it is expected that before the close of 1900 there will be 21,000 or more ovens in the Connellsville region. Production of Coke this year is expected to exceed 10,000,000 tons. There is a great scarcity of both Furnace and Foundry Coke and very high prices are being paid for it, especially for Coke for prompt shipment. We are advised that Furnace Coke for first half of the year has sold as high as \$3.25 a ton, while for small lots for spot shipment \$3.50 has been paid. The minimum price of Foundry Coke today seems to be \$3.50 a ton, and some operators are not willing to take contracts at that price, except for the whole year. It looks as though some consumers of Coke who have not covered for their supply for first half may have some trouble in getting Coke.

The South Chester Pipe & Tube Company, Chester, Pa., have opened a branch office in the Park Building, Pittsburgh, with Clarence E. Corbett as manager. Mr. Corbett was formerly connected with Pennsylvania Tube Works.

## Cincinnati. (By Telegraph.)

Office of *The Iron Age*, Fifth and Main streets.  
CINCINNATI, January 10, 1900.

There is still very little to say regarding the Pig Iron market and nothing whatever that borders on or is prophetic of the sensational. The week has been very quiet, though at the same time showing a gradually increasing volume of sales and inquiry. No large trades are reported, and there are no indications pointing to anything else than small entries on order books throughout the coming week. In the absence of any movement sufficient to test the market the price-list remains unchanged. The situation is generally regarded as a very strong one, and there is an entire absence of any signs of weakness. Consumers are pretty generally pushing for deliveries, and very few, if any, are asking for Iron to be held back. The Coke situation is still unchanged and presents the most discouraging feature of the season. The interference of the holiday season with furnace operations in the South is said to have been a very material one and of sufficient importance to have a noticeable effect on the general situation. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1.....	\$21.75
Southern Coke, No. 2.....	20.75
Southern Coke, No. 3.....	19.75
Southern Coke, No. 4.....	19.50
Southern Coke, No. 1 Soft.....	21.75
Southern Coke, No. 2 Soft.....	20.75
Southern Coke, Gray Forge.....	\$19.00 to 19.25
Southern Coke, Mottled.....	19.00 to 19.25
Ohio Silvery, No. 1.....	30.00
Ohio Silvery, No. 2.....	29.00
Lake Superior Coke, No. 1.....	\$24.00 to 24.50
Lake Superior Coke, No. 2.....	23.00 to 23.50

### Car Wheel and Malleable Irons.

Standard Southern Car Wheel, Chilling Grades .....	\$25.75 to \$26.25
Standard Southern Car Wheel, No. 2.....	24.75 to 25.25
Lake Superior Car Wheel and Malleable .....	25.50 to 26.50

**Plates and Bars.**—With the exception of Plates the entire market is strong and active. Prices, however, are not changed, and the indications are for a steady market. We quote, f.o.b. Cincinnati: Iron Bars, carload lots, 2.25c., with half extras; small lots, 2.60c., with full extras; Bar Steel, in car lots, 2.50c., with half extras; small lots, 2.95c., with full extras; Iron Bar Angles, 1½ x 3-16 inch and larger, in car lots, 2.65c.; small lots, 2.80c.; Sheets, No. 10, 3c. to 3.15c.; No. 27, Stove Pipe, 3.25c.; No. 27, Steel, 3.35c.; Plates, 2.75c. to 3c.

**Old Material.**—The market has been nominally steady with a moderate amount of new business. We quote, f.o.b. Cincinnati: No. 1 Wrought Railroad Scrap, \$22 to \$23 per net ton; Cast Scrap, \$14.50 to \$15.50 per gross ton; Axles, \$26 to \$27 per net ton; Iron Rails, \$27 to \$28 per gross ton; Car Wheels, \$22 to \$22.50 per gross ton.

The Republic Iron & Steel Company have appointed Rogers, Brown & Co. exclusive agents for the sale of the product of their Pioneer (Ala.) furnaces excepting for New York City and vicinity. The Pioneer brand is well known throughout the entire country. It is very popular among consumers desiring a strong Southern Coke Iron.

## Cleveland.

CLEVELAND, January 9, 1900.

**Iron Ore.**—The tabulated statements from Iron Ore dock managers at Lake Erie ports which were submitted the latter part of last week bear out the statement made in *The Iron Age* some weeks ago to the effect that the stocks of Ore on Lake Erie docks at the close of the season of navigation were very little in excess of those of a year ago despite the enormous production during the year just closed. The official statements show that the stocks in question were not quite 500,000 tons in excess of the stocks on these docks a year ago and fully 400,000 tons less than at the close of navigation in 1897. There is a practical certainty that with the tremendous consumption of Iron Ore which may be expected to continue for many months to come the stocks on the Lake Erie docks will be cleaned up very cleanly and in all likelihood, too, quite a while before the opening of navigation in the spring. The disclosure of this state of affairs has not been without its effect during the past week, and a number of scattering sales of Ore have been made to furnace interests which had not up to that time covered all the Ore required, but which the revelation of the state of affairs brought into the market. The transportation situation in so far as new charters are concerned is without developments. The annual meeting of the Lake Carrier's Association, embracing in its membership practically all the vesselmen on the great lakes, will be held January 17 at Detroit, and it is ex-

pected that action will be taken looking to securing Congressional action to provide a new channel at the Soo River so that vessel blockades such as seriously interfered with the Ore trade last season may be obviated in the future.

**Pig Iron.**—The year has opened with some business on the market, but the activity is not yet very marked. It has been generally supposed that the opening of the Bessemer market for sales for the second half of the year delivery would start the general buying, but it now looks as if the market on Foundry grades would open ahead of the Bessemer market. Foundrymen are nearly through inventory operations, and will want to cover requirements for the year as soon as possible, while Bessemer consumers are apparently less exercised over the immediate future. All grades remain at the same quotations as last listed. The gravity of the situation with regard to a supply of Coke is increasing and this combined with the scarcity of cars, for which there seems to be no relief, makes it almost certain that the January production of Pig Iron will be considerably behind that of December. As there appears to be no relief in sight for a long time in advance furnace men in this district are free in the prediction that the output for 1900 will be considerably behind 1899. Scattering sales for delivery during the first and second quarters of the year continue to be made. It is difficult to get Iron in any quantities for this delivery, but no higher prices are demanded.

**Finished Material.**—The chief feature of the week has been the change in the Steel Bar situation as a result of the meeting of Bar manufacturers. The conference developed the fact that the recent weakness was without cause, and was indeed induced simply by the fact that manufacturers were uninformed as to what each other was doing. As a result a bed rock figure of 2.25c. was fixed, and there will be no more of the cutting which has been prevalent for several weeks past. Nobody seems able to say anything definite regarding the Plate market. It is certainly far from solid, and it is impossible to give any quotations of value. Little has been done in Rails during the week and the only business in the Structural market was a contract for about 1000 tons for a building at Toledo, Ohio.

**Old Material.**—The Old Material market is devoid of unusual features. The demand shows no falling off, while the supply continues adequate. The lull which set in a week before Christmas is gradually disappearing as consumers get their plants in operation after shut downs for inventory or repairs, and prices have kept up pretty well to those last quoted.

### St. Louis. (By Telegraph.)

Office of *The Iron Age*, 1205 Chemical Building, St. Louis, January 10, 1900.

**Pig Iron.**—The present week finds the Pig Iron market featureless. But little buying has thus far been done, and that for small quantities only. Prices remain unchanged, and no likelihood of furnace quotations showing any concessions. Perhaps an occasional broker may find it preferable to sell at slight reduction some Iron held for private account to avoid storage or demurrage charges. Such transactions, however, would not affect the market any more than do the recent lower quotations on warrants. Attempts to buy warrants as press prices, and even a point higher, have not met with success. The situation is considered strong, and after stockholders at annual meetings have fully canvassed business of the past year and the outlook for the present one an active demand is expected. As it was, many foundries, which fully arranged to shut down during the holidays, were forced by stress of orders to continue in active operation. Stock taking was done mainly on the run. We quote on cars St. Louis:

Southern, No. 1 Foundry.....	\$22.25 to \$22.50
Southern, No. 2 Foundry.....	21.50 to 21.75
Southern, No. 3 Foundry.....	20.25 to 20.50
No. 1 Soft.....	22.25 to 22.50
No. 2 Soft.....	21.50 to 21.75
Gray Forge.....	20.00 to 20.25

**Bars.**—Considering the period sales are said to be satisfactory to mills and jobbers. It is probably general that stocks of the latter are rather heavier in tonnage this year than usual. Some jobbers express a desire to draw on present supplies before entering extensively into new purchases. With smaller stocks filled in at present market prices, quotations will be firmly held. Concerning volume of business for 1899 extreme satisfaction has been expressed by the trade. Mill quotations on Iron remain at 2.35c., base, half extras, East St. Louis, in carload lots. No change has taken place in jobbers' prices, which are 2.75c. to 2.90c., base, full extras, as to quantities and assortment. Steel Bars are to be had at

about 2.50c., base, half extras, in carloads. East St. Louis. Jobbers' price is 3c., full extras.

**Rails and Track Supplies.**—Trade is considered remarkably good for the season. The weather has been very mild for nearly a week, and outdoor operations have been carried on more extensively. We quote: Splice Bars, Steel, 2.55c.; Iron, 2.55c.; Track Bolts, with Square Nuts, are now 3.80c.; with Hexagon Nuts, 3.95c.; Spikes, 2.85c.; Steel Links and Pins, 3.20c.

**Pig Lead.**—On St. Louis exchange brokers have given out that Lead has sagged to 4.57½c. Diligent inquiry develops the fact that they offered producers higher prices. Refiners sold Soft Missouri yesterday at 4.65c., and see no reason for selling at lower prices to-day. Lead Ore shows an advance of 50c., making rate per 1000 lbs. 82c.

**Spelter.**—There is not any change in this metal. No transactions are of record, but 4.35c. is the top price. If anything, the market may be considered a trifle stronger. Zinc Ore sold at \$36.50 per ton, being the same highest price paid last week. Buying, however, was light.

### Metal Market.

Office of *The Iron Age*, 232-238 William street, New York, January 10, 1900.

**Pig Tin.**—An unsettled condition dominates the market. Arrivals are small, stock on hand is well concentrated and afloats are also small, so that it is easy for the holders of the metal to demand high prices for spot and this month's delivery. As a consequence of this condition there is actually a discount of about 2c. per lb. existing at present between spot and this month and February deliveries. At the close to-day the market was quoted entirely nominal, with 25½c. to 26½c. for spot while February and March are freely offered at 24½c. The London market fluctuated as usual and closed to-day with an easy tone at £111 15s. for spot and £112 10s. for futures. The annual statistics of the Metal Exchange are:

#### SUPPLIES.

Supplies increased during 1899:	Tons.
From the Straits Settlements.....	306
From Australia.....	950
From Bolivia.....	900
From Billiton sales.....	5
Total increase.....	2,155

#### DELIVERIES.

Deliveries during 1899:	Tons.
London decreased.....	2,040
Continent of Europe decreased.....	4,120
Total European decrease.....	6,260
United States increased.....	2,503
Net decrease.....	3,697

The apparent heavy reduction in deliveries in Europe may be due to the using up of invisible supplies, owing to the high range of values.

**Copper.**—There has been a slight stiffening of values throughout the last week, and Lake is now quoted 16½c. Electrolytic is 16¼c. and Casting Copper 16½c. The reason given for this is an increase in demand which it is said has amounted to considerable, comparing with the utter lack of business which prevailed for several weeks prior to the one just closed. London fluctuated somewhat but closed firm to-day with £70 2s. 6d. for spot and futures. Best Selected remains unchanged from last week at £73 10.

**Pig Lead.**—This market is steady and unchanged, with prices at 4.70c. to 4.75c. for spot and futures. St. Louis is quoted rather weak at 4.57½c. to 4.60c. Prices of the American Smelting & Refining Company are also unchanged at 4.70c., New York, and 4.65c., St. Louis. London has advanced slightly and comes at the close to-day £16 12s. 6d.

**Spelter**—Remains easy. It is said that sales have been made at 4.50c., and this figure is given as the market quotation. Certain producers are, however, out of the market, claiming that they cannot make the Spelter at any such figures when the present price of the ores is considered. The price of high grade ores is said to be \$35.50 per ton, although there are reports of sales of the cheaper grades as low as \$28. The advices from St. Louis to local merchants state that the metal is selling there at 4.30c. London is quoted unchanged at £20 5s.

**Antimony.**—No change has been made and Hallett's continues to sell at 9¾c., while Cookson's is still quoted 10½c. to 11c.

**Nickel**—Steady and unchanged at 38c.

**Quicksilver.**—Wholesale prices are unchanged. Flasks of 76½ lbs. are quoted \$51. The London market is also

without change at £9 12s. 6d. for Rothschild's, and £9 11s. 3d. for second hand.

**Tin Plate.**—There has been a marked increase in demand since our last writing. It is said that the Tin Can industry are ordering heavily. As to prices there is no change. The American Tin Plate Company are quoting on a basis of \$4.84 per box of standard 100-lb. Cokes, f.o.b. New York, or 4.65c. f.o.b. mill.

We are informed that the main offices of the American Tin Plate Company, which are to be removed to this city from Chicago, will be located in the Battery Park Building, which is nearing completion. The offices of the National Steel Company will also be removed to this building from Chicago. The transfer will be made as soon as the building is completed, which will probably be several weeks hence.

### New York.

Office of *The Iron Age*, 222-238 William street,  
NEW YORK, January 10, 1900.

**Pig Iron.**—Some business has been done during the week, but the larger lots have been placed only by making moderate concessions. Prices are as follows: Lehigh and Schuykill Irons, for 1900 delivery, No. 1 Foundry, \$24 to \$25; No. 2 X, \$22.50 to \$22.75; No. 2 Plain, \$21.50 to \$22, and Gray Forge, \$18.50 to \$19.25. Southern brands are quoted: No. 1 Foundry, \$22.75 to \$23; No. 2 Foundry, \$21.75 to \$22; No. 1 Soft, \$22.50 to \$22.75; No. 2 Soft, \$21.50 to \$22; No. 3 Foundry, \$21.50 to \$21.75, and Gray Forge, \$19.25 to \$20.25.

**Cast Iron Pipe.**—There are indications of a struggle between the Eastern independent shops and the consolidation. Little new business of importance is coming up. We quote \$30 to \$31 per short ton for 8-inch Pipe.

**Steel Rails.**—The market is very quiet, and quotations remain at \$35 for Standard Sections at mill. We quote 2.40c. to 2.50c. for Angle Bars and 2.65c. to 2.75c. for Spikes.

**Finished Iron and Steel.**—While a good many good contracts are in sight, little has been done during the past week. The largest contract now on the market is for 13,000 tons of Bridge Material for a leading trunk line. We quote: Beams, 2.40c. to 2.50c.; Angles, 2.40c. to 2.45c.; Universal Mill Plates, 2.65c. to 2.75c.; Tees, 2.40c. to 2.45c.; Channels, 2.40c. to 2.50c.; Steel Plates are 2.45c. to 2.60c. for Tank, 2.65c. to 2.75c. for Shell, 3c. to 3.10c. for Flange, 3.15c. to 3.30c. for Fire Box, 3.75c. to 4c. for Locomotive Fire Box, on dock. Charcoal Iron Plates are 3c. for C. H. No. 1, 3.50c. for Flange, and 4c. for Fire Box. Refined Bars are 2.20c. to 2.25c. and Common Bars are 2c. to 2.10c., on dock. Soft Steel Bars, 2.35c. to 2.45c.; Hoops, 2.70c. to 2.75c., base, delivered.

**Merchant Pipe.**—Quotations on Merchant Pipe in carloads are 50, 10 and 10 per cent. discount, delivered, and in less than carloads 50 and 10 per cent., f.o.b. maker's mill. On Casing the figures are: For carload lots, S. and S. Joint, 37½ per cent.; Inserted Joint, 32½ per cent.; for less than carload lots, S. and S. Joint, 32½ per cent., and for Inserted Joint, 27½ per cent., less 5 per cent. to jobbers, the prices for carload lots being delivered and for less than carload lots f.o.b. mill. On Boiler Tubes, 1¾ to 2⅓ inch, the prices are 55 per cent. off on Steel and 50 per cent. on Iron; for Boiler Tubes, 2⅓-inch and larger, 55 per cent. on Steel and 52½ per cent. on Iron, all subject to 5 per cent. on car lots, the prices for carload lots being delivered and on less than carload lots f.o.b. mill.

### The H. C. Frick Coke Company.

(By Telegraph.)

PITTSBURGH, PA., January 10, 1900.—At a meeting of the stockholders of the H. C. Frick Coke Company held at Scottdale, Pa., on Tuesday, January 9, the following Board of Managers was elected: Henry C. Frick, Thomas Lynch, George Lauder, James Gayley, Thomas Morrison, A. M. Moreland, D. M. Clemson. Gayley, Clemson, Morrison and Moreland are new members of the board, John Walker and G. B. Bosworth having retired. At a meeting of the new Board of Managers, held in the Carnegie Building, Pittsburgh, on Wednesday, January 10, all the old officials were elected, consisting of Thomas Lynch, president; W. C. Magee, vice-president; G. B. Bosworth, treasurer, and M. M. Bosworth, secretary. Henry C. Frick resigned his position as chairman, and that office has been abolished.

### Commercial Failures in 1899.

The year 1899 made the most conspicuously favorable record in respect of commercial failures of any year since complete returns were gathered. According to the statistics tabulated by *Dun's Review*, the business failures of 1899 were 9337 in number, with liabilities of \$90,879,889, of which \$30,792,164 were in manufacturing, \$48,924,771 in trading, and \$11,162,954 in brokerage and other commercial liabilities. In amount, last year's failures were smaller than in any year of the past 25 years, excepting 1880 and 1881, while the average of liabilities was smaller than in any previous year, and, most important test of all, the ratio of defaults to solvent payments through clearing houses, 97 cents per \$1000, was not only the smallest ever known, but smaller than in any quarter of any year save one. But for the nest of failures resulting from the speculative collapse in Boston at the close of the year, the aggregate of liabilities would have been about \$21,000,000 less than it was.

The following table gives the commercial failures for the 25 years, from 1875 to 1899 inclusive, with the aggregate of liabilities and the average of liabilities per firm:

Statement of Failures for Twenty-five Years and Average Liabilities.

Years.	No. failures.	Amount of liabilities.	Average liabilities.
1875	7,740	\$201,060,333	\$25,960
1876	9,092	191,117,786	21,020
1877	8,872	190,669,936	21,491
1878	10,478	234,383,132	22,369
1879	6,658	98,149,654	14,741
1880	4,735	65,752,000	13,886
1881	5,582	81,155,932	14,530
1882	6,738	101,547,564	15,070
1883	9,184	172,874,172	18,823
1884	10,968	226,849,427	20,632
1885	10,637	124,220,321	11,678
1886	9,834	114,644,119	11,651
1887	9,634	167,560,944	17,392
1888	10,679	123,829,973	11,595
1889	10,882	148,784,337	13,672
1890	10,907	189,856,964	17,406
1891	12,273	189,868,638	15,471
1892	10,344	114,044,167	11,025
1893	15,242	346,779,889	22,751
1894	13,885	172,992,856	12,458
1895	19,197	178,196,060	13,124
1896	15,088	226,096,834	14,992
1897	13,351	154,332,071	11,559
1898	12,186	180,662,899	10,722
1899	9,837	90,879,889	9,733

The above shows the failures in 1899 to have been the smallest ever reported since 1881, with the lowest average of commercial liabilities ever reported, and with greater evidence of commercial soundness than has appeared in any other annual statement. And not only were the failures of last year smaller in the aggregate, but a decrease is shown in every section of the country in both trading and manufacturing defaults, except in New England, where the troubles at the close of the year involved several connected concerns with heavy liabilities. Such uniformity of improvement is extremely rare, and would scarcely be possible except business in all sections was generally sound and prosperous.

The manufacturing defaults were the smallest in any year in Massachusetts, in spite of the Squire collapse, as were those in the other New England States, in New York and the Middle and Central States. In New York the manufacturing failures were only about a quarter of those in two years of the previous five, and not half those of two other years, while the trading failures were also much less than half those of four previous years, but in brokerage the liabilities were nearly as large as in two other years, and in banking larger than in any previous year. But in other Middle States manufacturing and trading liabilities presented the same bright contrast, while in both other lines the failures would have been almost nothing but for that of a single large stock concern at Philadelphia wrecked by crime, and in no way caused by business conditions. It may be added that the Central States also showed trading defaults from \$3,000,000 to \$11,000,000 smaller than in any previous year, though some brokerage and promoting failures at Chicago swelled the "other commercial" defaults above the returns of previous years except one.

The average defaulted liabilities per firm is a test which serves better than most to show how the defaults compare with the extension of business. This year that average is for the first time less than \$80, the lowest in any previous year being \$93.63, in 1880. A still better test, however, is the ratio of defaults to actual payments in solvent business through the clearing houses. Here the ratio for 1899 is shown to be only 97 cents per \$1000, the lowest by more than one-fifth ever reported in any year.

The Lehigh Valley Emery Wheel Company of Scranton and Philadelphia, Pa., have been incorporated with a capital of \$30,000.

## QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING JANUARY 10, 1900.

Cap'l Issued.	Sales.	Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday
\$29,000,000	Am. Car & Foundry, Common..	3,392	13½-14%	14 -14½	13½-14	-13½	-13½
29,000,000	Am. Car & Fy., Pref. (7% Non-Cu.)	2,258	61 -62½	62 -62½	.....	-62½	-63
19,000,000	Am. Steel Hoop, Common.....	2,060	-48½	48½-44	42 -42½	-42½	-42½
14,000,000	Am. Steel Hoop, Pref. (7% Cu.)	1,170	.....	-82	81½-82	.....	-82
50,000,000	Am. S. & W., Common.....	54,715	47 -49	46½-49	46½-47½	45½-48	47 -49
40,000,000	Am. S. & W., Pref. (7% Cu.)	5,225	90 -91	90 -90½	90½-91	90½-90½	89½-90½
28,000,000	Am. Tin Plate, Common, N. Y..	4,210	32 -33	31½-33	31½	29½-31½	29 -30
18,000,000	Am. Tin Plate, Pref., N. Y. (7% Cu.)	240	-80½	.....	.....	-81	.....
7,500,000	Bethlehem Iron*.....	100	-58	-58½	.....	.....	-59
15,000,000	Beth. Steel, Par \$50, \$1 paid in.	735	-18½	18½-19	.....	.....	-18½
7,974,550	Cambria Iron, Phila*.....	97	-45	-45	-45	.....	.....
16,000,000	Cambria Steel**.....	6,621	21½-22	21½-22	21½-21½	21½-22½	21½-21½
11,000,000	Col. Fuel and Iron.....	10,621	42½-44½	43 -44½	41½-42½	40½-42	40½-41½
46,484,300	Federal Steel, Common.....	70,290	51½-53½	51½-53½	51 -52½	50½-53½	48½-51½
58,253,500	Federal Steel, Pref. (6% Non-Cu.)	8,959	73½-74%	73½-74%	73 -74	72½-73½	70½-72
32,000,000	National Steel, Common, N. Y..	4,445	44 -44½	42 -44	-41½	41 -42½	42 -43
27,000,000	Nat'l Steel, Pref., N. Y. (7% Cu.)	1,495	-92½	-92½	.....	-92½	-92
5,000,000	Penna., Common, Phila.....	50	-78	.....	.....	.....	.....
1,500,000	Penna., Pref., Phila.....	.....	.....	.....	.....	.....	.....
12,500,000	Pressed Steel, Common.....	5,235	-57	57½-58	57 -57½	56½-58	57 -57½
12,500,000	Pressed Steel, Pref. (7% Non-Cu.)	1,092	-86½	-86	.....	85½-86	-86
27,352,000	Republic Iron & Steel, Common.	6,305	22½-22½	22 -22½	20½-22	21½	20½-21½
20,852,000	Repub. Iron & Steel, Pref. (7% Cu.)	1,940	65½-66	66½-68½	65½	65½	.....
20,000,000	Tennessee Coal and Iron.....	12,135	85 -87½	84½-87½	83½-84½	82 -84½	83 -85½
1,500,000	Warwick Iron & Steel (par \$10)	1,006	10½-10½	-10½	10½-10½	-10½	-10½

\* Par \$50. \*\* \$1.50 per share paid in. + 6% guaranteed by Beth. Steel Co. Late Philadelphia sales by telegraph.

† Ex-dividend.

**Bonded Indebtedness:** Am. S. & W., \$130,656; Am. Tin Plate, none; Am. Steel Hoop, none; Cambria Iron Co., \$2,000,000 6½ debenture 20-year bonds, 1917, payable option 5 years, assumed by Cambria Steel Co.; Federal Steel Co., \$13,200,000 Illinois 5%, \$7,417,000 B. J. E. R. R. 5%, \$1,600,000 Johnson 6%, \$6,722,000 D. & I. R. R. 5%, \$1,000,000 2d D. & I. R. R. 6%, \$10,000 land grant D. & I. R. R. 5%; National Steel, \$2,561,000 6%; Tennessee C., I. & R. R. Co., \$8,367,000 6%, \$1,114,000 7%; \$1,000,000 7% cu. pref.; Pennsylvania Steel, \$1,000,000 5% Steelton 1st 1917, \$2,000,000 5% Sparrow's Point 1st 1922, \$4,000,000 consolidated, both plants; Bethlehem Iron, \$1,361,000 5% maturing 1907. Interest and principal guaranteed by Bethlehem Steel Co. Republic Iron & Steel, none; Warwick Iron & Steel, none. Colorado Fuel & Iron Co.: Col. Fuel Co. Gen. Mort. 6% \$880,000, Col. Coal & Iron Con. Mort. 6% \$2,810,000, Col. Fuel & Iron Gen. Mort. 5% \$2,308,000. Also outstanding \$2,000,000 preferred stock with accumulated dividends of \$640,000 to June 30, 1890.

## Iron and Industrial Stocks.

Aside from Federal Steel the market for iron stocks was quiet during the week under review, and fluctuations were not important. The action of the directors in declaring only the dividend held over from last year was disappointing. In nearly all the other issues prices were fairly maintained, excepting Tennessee, which has lost considerably during the week.

	Bid.	Asked.
International Silver, Common.....	9½	10
Otis Elevator, Common.....	22	25
Otis Elevator, Preferred.....	86	88
H. R. Worthington, Preferred.....	103	106
Cramp's Shipyard Stock.....	80	84
Pratt & Whitney, Common.....	3½	5
Pratt & Whitney, Preferred.....	46	54
E. W. Bliss, Common.....	132	...
E. W. Bliss, Preferred.....	125	...
U. S. Projectile.....	95	100
Barney & Smith Car, Common.....	15	20
Barney & Smith Car, Preferred.....	94	100
International Pump, Common.....	16	18
International Pump, Preferred.....	63½	65½
Diamond State Steel.....	5%	5½
Tidewater Steel.....	13½	13½
Sloss & Sheffield Steel & Iron, Common.....	30	34
Sloss & Sheffield Steel & Iron, Preferred.....	69	71
National Tube, Subscriptions, Common.....	43	44
National Tube, Subscriptions, Preferred.....	92	93
American Bicycle Company, Common.....	17	17
American Bicycle Company, Preferred.....	51	51
American Bicycle Company, Bonds.....	92	93

The Standard Underground Cable Company of Pittsburgh have notified their stockholders that the dividend now due on the new stock is payable at the Union Trust Company, in Pittsburgh, between the 10th and 15th. inst.

The net earnings of the American Car & Foundry Company for the quarter ending November 30 amounted to \$1,127,985, or \$197,372 more than in the quarter ended August 31.

The Pittsburgh Coal Company have declared an initial quarterly dividend of 1½ per cent. on the preferred stock, payable January 25. The distribution will amount to \$560,000.

A statement has been issued by the United States Cast Iron Pipe & Foundry Company showing profits for November of \$80,557, together with other details, as follows:

Balance at credit profit and loss account November 1 .....	\$678,829
Add, profit for month of November .....	80,557
Total profit March 1 to December 1.....	\$759,386
Less dividend paid December 1.....	218,750
Balance at credit of profit and loss December 1.....	\$540,636
On hand December 1 the following finished product:	Per ton.
31,117 tons pipe inventoried at cost, say.....	\$19.55
937 tons flange pipe inventoried at cost, say.....	27.81
2,562 tons pipe fittings inventoried at cost, say.....	35.71
695 tons miscellaneous castings inventoried at cost, say.....	54.84

Also, 43,361 tons pig iron inventoried at cost, say, \$14.03 per ton delivered in the company's yards.

The interest due January 1 on the American Pipe & Foundry Company bonds has been provided for and sent to the trustee.

The American Tin Plate Company have declared their regular quarterly dividend of 1½ per cent. on the preferred stock, payable January 31. Books close January 22 and reopen February 1.

The directors of the Pressed Steel Car Company met in New York, Monday, January 8, and declared a quarterly dividend of 1½ per cent. on the common stock, and provided for the dividends on the remaining three-quarters.

The directors of the American Steel Hoop Company have declared the regular quarterly dividend of 1½ per cent. on the preferred stock, payable January 31. The books close January 20. C. S. Guthrie, president of the company, states that the profits for the first eight months of the fiscal year of the company aggregate \$3,000,000, with four good months yet to hear from.

The announcement that the directors of the Federal Steel Company, at their meeting, had only declared a dividend of 1½ per cent. on the common stock, payable January 20, was a disappointment. It is stated, however, that another meeting will be held on the second Tuesday in February to declare an additional dividend.

Some of the large negotiations which the American Steel & Wire Company have had under consideration have fallen through. Among these is the purchase of the ore property of Witherbee, Sherman & Co. of Port Henry, N. Y.

The annual meeting of the Pressed Steel Car Company has been held. The following directors were elected: Chas. T. Schoen, Henry W. Oliver, W. H. Schoen, E. Hawley, E. A. Schoen, F. N. Hoffstot and A. H. Larkin. The new names are those of E. A. Schoen, who succeeds C. L. Freer, and F. N. Hoffstot, who succeeds E. N. Dickerson. The detailed report of the company for the year has not been prepared, but it was reported that net earnings for the year were \$2,237,103.85. At a subsequent meeting of the newly elected Board of Directors the following officers were chosen for the current year: Chas. T. Schoen, president; W. H. Schoen, vice-president; W. C. De Armond, secretary; W. O. Jacquette, treasurer.

## The Puddling Scale.

(By Telegraph.)

PITTSBURGH, PA., January 10, 1900.—The regular bi-monthly settlement of the wage scale for puddling and finishing mills took place in Youngstown Wednesday, January 10. Reports of shipments of Iron Bars by the mills in November and December showed that the average price was about 1.80c. at mill. This is an advance of 0.20c. over the average price for September and October, and entitles puddlers to an advance of 25 cents a ton, increasing the present rate from \$5.50 to \$5.75 a ton. Guide mill rollers will get an advance of about 4 per cent., and finishing mill hands about 4½ per cent.

## OBITUARY.

## S. DANA GREENE.

Samuel Dana Greene, one of the managers and vice-presidents of the General Electric Company, was drowned on January 8, while skating on the Mohawk River at Schenectady, N. Y., his wife losing her life at the same time. Mr. Greene, who was only 35 years old, was a son of the late Commander Samuel Dana Greene, who was second in command of the "Monitor" when she fought the "Merrimac." He entered the Naval Academy at Annapolis in June, 1879, and was graduated No. 1 in his class in June, 1883. On July 1, 1885, he received his commission as ensign. He resigned from the service in 1888 to enter the electrical field, and became associated with Thomas A. Edison in the various companies with which the inventor was connected and which were merged in the General Electric Company, for which Mr. Greene was general manager of the lighting department. Prior to assuming this position he was chief engineer for the Sprague Electric Railway & Motor Company. In 1891 Mr. Greene joined the naval militia, and when the war with Spain broke out was chief of staff of the First Battalion. He volunteered, and was ordered to the "Yankee," on which vessel he served as lieutenant (junior grade) until the conclusion of hostilities, when he was honorably discharged. He was then appointed lieutenant commander and chief of staff to Capt. Jacob W. Miller, commanding officer of the New York Naval Militia.

WARD H. DEAN.

Ward Hunt Dean, for many years the superintendent of the Dean Brothers' Steam Pump Works, Indianapolis, Ind., died January 3 at his home in that city from Bright's disease, aged 50 years. He was born in Deansville, Oneida County, N. Y., and removed when a child to Rome, N. Y. In 1870 the family removed to Indianapolis, and a foundry was established, afterward to become the Dean Bros. Steam Pump Works, of which W. H. Dean was the superintendent from the start until his death. He was noted for his inventive talent and originality in the designing of mechanical improvements.

H. P. KELLOGG.

H. P. Kellogg, who was one of the pioneer hardware men in Chicago, died on the 6th inst., at his old home, Benson, Vt., where he went with an invalid sister three months ago. He was born in Benson 69 years ago. There he received his education, and in 1855 he removed to Chicago. He was employed as a bookkeeper by Joseph T. Ryerson for four years and then he established the hardware firm of Kellogg & Patterson. Their store, which was at Clark and Monroe streets, was burned by the big fire. The firm then moved to Randolph street, and in 1865 became Kellogg & Johnson. Later George E. Bliss was taken into the firm, and they engaged in business at 108 and 110 Randolph street until eight years ago, when they sold out to Buillard & Gormley, and Mr. Kellogg retired.

JOHN B. M'HARG.

John B. McHarg, Rome, N. Y., died at his home in that city December 28. He was born in Rome, October 26, 1823, and started alone in business, continuing until 1850, when he became associated with others, being for many years senior member of the firm of Hook, Pepper & Co. He was an enthusiastic sportsman, and the author of many important inventions related to angling. His father is said to have produced the first jointed fishing rod made in this country, and the subject of this sketch invented the sliding reel seat. Mr. McHarg was a pioneer in the manufacture of many devices and specialties (some of which were his own inventions) in the line of fishing tackle, such as McHarg's trolling spoons, artificial flies, jointed fishing rods, &c.

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After an idleness of seven years the Philadelphia furnace at Florence, Ala., was blown in on the 2d inst., and made its first cast 24 hours later. This furnace is now controlled by the Sloss Sheffield Company of Birmingham, Ala.

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The Chicago office of the Carborundum Company, manufacturers of carborundum and carbide of silicon, have changed their Chicago office from the Monadnock Building to 65 South Canal street, where they will carry a complete stock of goods. E. J. Eames is manager of the Chicago branch.

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The L. S. Starrett Company of Athol, Mass., have been incorporated with a capital of \$100,000 for the manufacture and sale of tools and machinery. The incorporators are L. S. Starrett, F. E. Wing, F. A. Ball.

## PERSONAL.

A. S. Hay of Naylor, Benzon & Co., London, and formerly a special partner in the firm of Naylor & Co. of New York and Pittsburgh, arrived in this country last week.

George H. Day of the Columbia & Electric Vehicle Company, at Hartford, Conn., is recovering from a serious attack of typhoid.

Henry Souther, consulting metallurgical engineer and State chemist, has leased the testing plant of the American Bicycle Company at Hartford, Conn., the plant having been built by him when he was connected with the Pope Mfg. Company. The equipment is admirable.

Julian Kennedy, consulting and contracting engineer, Smith Building, Pittsburgh, has been appointed consulting engineer for the two new blast furnaces to be built by the Illinois Steel Company at South Chicago.

W. J. Desmond has been appointed superintendent of the plant of Morehead Brother & Company, Incorporated, at Pittsburgh, manufacturers of iron and steel skelp and plates.

The president, council and members of the Iron and Steel Institute have presented to Thomas Ashbury of Manchester an oak cabinet containing a silver tea and coffee service, in recognition of his services in connection with the meetings at Manchester in 1887 and 1899.

W. J. Hayes, for 30 years superintendent of the Wire department of the Cleveland Rolling Mill Company, Cleveland, Ohio, now one of the plants of the American Steel & Wire Company, retired from business on January 1. His son, W. L. Hayes, who has been for a number of years his assistant, succeeds him in the superintendency. Mr. Hayes will take a well earned rest.

Henry M. Howe has been appointed professor of metallurgy, and W. A. Bentley lecturer in metallurgy at Columbia University, New York.

Henry Jeavons has resigned his position as assistant manager of the Otis Steel Company, Cleveland, Ohio.

R. L. Newman, formerly general manager of the Globe Iron Works Company, Cleveland, Ohio, has been appointed general manager of the New York Shipbuilding Company, who are erecting a large shipbuilding plant at Camden, N. J.

J. H. Vorstman of Milwaukee, Wis., has gone to Lille, France, to assume charge of a large plant being built there by the Franco-American Mfg. Company for the manufacture of Corliss engines.

D. W. Ropes of the Buffalo Forge Company has sailed for Europe to superintend the erection of the heating and ventilating machinery and heavy forge tools which the company have sold to the Deutsche Niles Werkzeug Fabrik and the German Garvin Company, at Berlin, Germany.

W. C. Temple, manager of the Cahall Sales Department at Pittsburgh, will soon leave for Florida for an extended visit.

Major Fred. Brackett, secretary and disbursing officer of the United States Commission to the Paris Exposition, expects to sail for France with his clerical staff about February 1. He will establish his official headquarters at No. 20 Avenue Rapp, Paris.

At the recent directors' meeting of the Lorain Steel Company, Lorain, Ohio, Max Suppes, who has for some time acted as general manager, was elected vice-president of the company.

Charles A. Moore of the firm of Manning, Maxwell & Moore, has sailed for Europe, where he will enjoy a six months' pleasure trip with his family.

John W. Gates of the American Steel & Wire Company denies the reports that he is to retire from the management at an early date, in order to devote himself to his railroad interests.

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The Gray Iron Company, Springfield, Ohio, have been incorporated for manufacturing and dealing in gray iron and other castings. The capital is \$20,000, and the incorporators are W. Bayley, A. W. Seaver, A. G. Dey, S. D. Bayley and W. S. Howell.

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George Key, city engineer of Ann Arbor, Mich., is experimenting with a process for obtaining steel direct from molten metal by blowing jets of steam through it as it flows from a vessel in a thin stream. Encouraging results are said to have been obtained from laboratory tests.

## The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street, New York, January 10, 1900.

Since our last writing this market has continued in a quiet, steady and uneventful manner. While there were no transactions of importance the inquiry and tone of the mails caused machinery merchants to express most sanguine views of the near future. January is supposed to be one of the slack months of the year and consequently the pulse of the trade counts for more than the actual results of the week just passed. Aside from stock taking and such operations which are said to still continue at the works of consumers of machinery it is doubtless true that many are waiting to see what course will be taken by the iron and steel and metal markets. On the other hand the increasing tendency of projectors of new works to reconsider plans which they have shelved temporarily seems to indicate rosy prospects for the first quarter of this year. Prices are unchanged, but firm, and even though the ensuing quarter may witness an easing up of pig iron prices the conditions of the machinery trade would not allow for a shrinking of values. Machinery merchants look for a sound steady year of activity minus the boom features of the year just closed. According to several representatives the most pronounced sectional activity at present is in the New England quarter, where the mills and factories seem to be quietly increasing the capacity of their plants. This work does not include much new construction on an extensive scale, but represents largely the duplicating of saving devices already installed.

One line which is especially active and has in fact been so throughout the greater part of 1899 is the furnishing of heating and drying systems. The high pressure under which manufacturers have been working has necessitated the adoption of methods for turning out work as quickly as possible. In capacity the drying plants of lumber mills, brick manufactories, white lead plants, print mills, &c., have been greatly augmented during the last few months.

Owing to the nice business which has been given out lately by the various automobile manufacturers the machinery men are keeping in touch with this class and following up the numerous new companies which are springing into existence. It is said that an automobile concern are now entertaining propositions for equipment from various machinery builders represented on the street. The Automobile Company of America, who it will be recalled are equipping the old plant of the Daft Electric Company, Marion, N. J., are still purchasing in a small way. The bulk of their machinery has been bought and one floor is now running. The company are working on an order for 400 carriages. Mr. Fisher is the superintendent at the works.

We are officially informed of the fact that the Columbia & Electric Vehicle Company of Hartford, Conn., have acquired the plant of the Hartford Cycle Company. This factory will be used for assembling and building the lighter vehicles and for building the gasoline carriages. Such machinery as is now erected at this plant and is adaptable to the work will be retained, while other tools will probably be transferred to the Pope works. Additional machinery will be required to complete the equipment of the plant. The Electric Vehicle Company, a branch of the parent company, have turned in an order for 2000 of the lighter types of vehicles. Work will be commenced at once at the newly acquired Hartford plant on 100 electric delivery wagons and 300 bansom. It is also stated that the American companies have arranged to co-operate with Ludwig, Loewe & Co. of Berlin and the French firm of Les Usines Clement of Levallois, France. The German concern are well known as ranking among the largest mechanical establishments of Continental Europe. The French company, it will be recalled, have recently built a plant at Levallois, on the River Seine, directly outside of Paris. This company are now building automobiles under the patents controlled by the Columbia Company. These concerns will do that portion of the automobile manufacture which there would be no profit in doing here. On account of the great space, in comparison with the weight, required in the transportation of the vehicles from this country it has been found unprofitable to export the complete carriages. Parts of the vehicles will be made here, the light portions will be built at the European shops and the entire carriage will be assembled and set up there. Hart O. Berg, who was formerly manager of the Colt's Patent Fire Arms Mfg. Company of Hartford, is now an official of the French company. He was in this country recently arranging the details of the European deal.

The policy of renting the machines in preference to selling them outright will be pursued by the European companies. This policy embodies the renting and re-renting until the vehicles are worn out. When a machine of 1900 pattern, for instance, is out of style for pleasure use it may be rented to a business firm and so on down until it is practically reduced to the scrap heap. Neither

the American nor European companies can, with their present facilities, handle the work which is occasioned by the demand.

Frank Slater, president of the Slater Engine Company of Warren, Mass., has been in town during the last few days purchasing machinery for an extensive addition to the Warren plant. Contracts for the bulk of the material were closed yesterday. Mr. Slater states that his shops are overrun with orders.

It is said that the Braddock Machine & Mfg. Company of Braddock, Pa., are purchasing an equipment for their new machine shop and foundry. Besides the machine tools, power plant and foundry equipment which are required cranes of 30, 20 and 15 tons capacity will be bought. We are informed that the contract for the buildings has been awarded to the Pittsburgh Bridge Company.

The Whitman Mfg. Company of 39 Cortlandt street and Garwood, N. J., have just given orders for more machine tools, which will be placed in operation at their new shop. Besides their regular line of gas engine friction clutch pulleys they are perfecting a line of shaft clutches and clutch pulleys. The works are now running.

Woolston & Brew of 141 Broadway have just booked an order from J. G. White & Co. for a 350 horse-power Fisher engine. It will be shipped to Porto Rico. They have also secured an order from the New York Belting & Packing Company of Passaic, N. J., for a large Fisher engine.

A quantity of small machine tools are being purchased by Thomas Aldcorn of the Chicago Pneumatic Tool Company of 120 Liberty street. The tools will be placed in the new Arlington, N. J., shop. The Chicago Pneumatic Tool Company have just received an order from the Kawasaki Dock Yards of Kobe, Japan, for 29 tools and an electrically driven air compressor.

J. H. Vorstman of Milwaukee, Wis., has gone to Lille, France, to take charge of the works of the Franco-American Mfg. Company. This company will build Corliss engines. They secured a large portion of their factory equipment in this country recently.

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Mayor Van Wyck signed the three resolutions for the construction of the two new bridges to span the East River that were passed by the Board of Aldermen a few days ago. The first resolution authorizes the construction of a bridge from Pike slip, Manhattan, to Washington street, Brooklyn. The second authorizes the issue of \$1,000,000 bonds to carry on the work. The third resolution authorizes the issue of \$1,000,000 bonds for the construction of the proposed bridge from the foot of East Sixtieth street over Blackwell's Island to Long Island City. The resolution authorizing the construction of the Blackwell's Island Bridge was defeated in the Council at the last session. At the time it was announced that the resolution of authorization had been passed, but that the appropriation had been defeated. The situation was exactly reversed, however. Preliminary work is now in progress on both bridges, and the actual work of construction of the Pike Slip Bridge can now begin. Comptroller Coler says that before the piers are above water an interborough tunnel system will be in operation, and there will be no need of bridges. "Then," he said, "they can use the caissons for recreation piers."

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The Terminal Railroad & Tunnel Company, with principal office in New York, were incorporated last week at Albany, N. Y., to operate a tunnel railroad 5 miles long, with a terminal at a point on the State line between New Jersey and New York, opposite to Jersey City, and at a point in Brooklyn near Prospect Park. The capital stock is \$50,000, divided into \$100 shares, and the directors are: Arthur C. Hume, Lewis Warfield, Cambridge Livingston, David L. Hough, Frederick Wooley, J. Hollis Wells, Johnston Livingston, Jr., Philip M. Lydig and Gilbert Francklyn, all of New York City.

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The Pressed Steel Car Company of Pittsburgh have received an order for 50 steel ore cars of 100,000 pounds capacity each for the Algoma Central Railroad, now building in Ontario, Canada. The cars will be similar in design to those recently built for the Great Northern, Lake Superior & Ishpeming Railroad. The Pressed Steel Car Company have also received an order for 500 steel gondola cars of a special design for the Paris, Lyons & Mediterranean Railroad of France. The order was placed by Lucien Marechal, engineer of that road. This order marks the first introduction of American steel cars on the European Continent.

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A board of trade has been established at Connellsville, Pa. Geo. J. Humbert was elected president, Rockwell Mariette was made first vice-president, Linford F. Ruth, second vice-president; N. P. Snyder, secretary, and J. W. McLaren, treasurer. An effort will be made to secure manufacturing plants for Connellsville.

## The Cleveland Machinery Market.

Office of *The Iron Age*, The Cuyahoga, CLEVELAND, January 8, 1900.

As a rule the business received by Cleveland concerns during December was equal to that of any other previous month, but several machinery manufacturers, especially those producing machine tools for steel work, say that there was a slight falling off in the demand just before the holidays, indicating possibly a feeling of uncertainty as to the future among some concerns and a desire to delay orders for new equipment until after the annual inventory and meetings. However, this slack up, brief as it was, was greatly appreciated wherever it was experienced, as it gave manufacturers a breathing spell that has long been needed. The demand for small tools and supplies was not affected, except perhaps that the small orders were not quite so numerous.

However, there is every indication that the let up of direct orders will more than be made up for later in the month, for it is the general statement that inquiries were never so numerous as at the present writing, and it would not be surprising if January brought the best business of the winter in many cases. It seems to be especially true that orders for large equipments were held over until after the first of the year. Several local manufacturers are devoting much of their attention at present to getting out samples of their complete lines preparatory to the Paris Exposition.

The shortage of coal, which seriously embarrassed manufacturers last month, has eased up considerably and there now is little difficulty in securing necessary fuel. The complaints of the inability to secure castings promptly are more numerous than last month, and while a few of the foundries are said to have been looking for business during December they now claim to have all the business they can accommodate. The orders for structural iron work for office and public buildings seem to be falling off slightly, as many projects have been abandoned until prices shall have dropped somewhat, but this is not true of the class of structural steel work used in manufacturing establishments. Factory buildings are needed at once and manufacturers are willing to pay the prices asked if they can be taken care of within a reasonable time.

The Cleveland Machine Screw Company failed to notice a perceptible falling off in the demand for screw machines during the past few weeks. The inquiries received since the first of the year have been unprecedented in their history, the demand covering about equally all the screw machines in their line. Foreign branches and agents of the company are turning in some unusual orders. The new building to be devoted to the manufacture of motor vehicles has been completed and equipped and a large number of vehicles are in process of construction. At present all shipments in this line go to France, where prices are said to be even better than in this country. The company's line has not yet been announced in this country.

Warner & Swasey are far behind on orders on all models of their line of screw machines. Calls for additional equipments seem to be heavier than the demands from new plants. The telescope department of their business is busier than ever before. Among the large instruments recently completed was an almucanter of unusual size for the Case School of Applied Science of this city.

The Grant Machine Tool Works have completed and will ship to Paris next week samples of their complete line. The machines will be exhibited by Markt & Co., their foreign agents. A machine of unusual size which is meeting with excellent reception is a 44-inch turret chucking and turning machine. Ten of these have been sold during the past few weeks and another lot is in process of construction. A 36 inch semi-radial drill which will bore a hole 21 inches at one setting is also meeting with good demand. Ten of these were completed last month, three of them going to Europe. A 42-inch automatic worm wheel hobbing machine, said to be the largest ever built, is under process of construction for the Warner Elevator Company of Cincinnati. The ball department of the company, known to the trade as the Grant Ball Company, made a shipment of 8 tons of large sized balls last week. The call for these goods is the largest ever known. The demand for bicycle sizes alone is unsatisfactory. The orders are large, but despite the great increase in the cost of material and labor the manufac-

turers demand and seem to be able to secure better prices than in previous years. The cheaper stamped ball seems to be superseding the turned product in all but the best grades of bicycles.

The Cleveland Ball & Screw Company have removed their sales offices to 446-448 Arcade Building. The change was made necessary by a need of additional factory facilities. As evidence of the demand for steel balls of unusual size the company point to a ball grinder, said to be the largest ever built, now in process of construction. It will grind balls up to 8 inches in diameter.

The Acme Machinery Company, manufacturers of bolt threaders, headers and nut tappers, say they were deeply gratified to experience a slight let up in the volume of business during the past three weeks. The direct orders fell off considerably, but since the first of the year the inquiries have been more numerous than ever before. They are still several weeks behind on deliveries.

The Cleveland Punch & Shear Company are four months behind on orders and are not talking deliveries for less than 12 weeks. The orders for larger sizes of punches and shears seem to be on the increase, and the inquiries since the first of the year have been astonishing. The orders from abroad continue to be very large. An order for 20 nail machines as additional equipment for a wire nail plant installed in Japan about two years ago shows that prosperity has also taken up its abode with the "Yankee of the East." E. I. Leighton has sold out his interest in the company and C. E. Thomas has succeeded him as manager.

Foot, Burt & Co., manufacturers of multiple spindle drills, also express themselves as pleased with a slight falling off in the demand for their goods during the past few weeks. The respite has only been temporary, however, for the inquiries being received give promise of increased business within a few weeks. At present they are about two months behind on orders. Their largest call is for three and four spindle drills, but there is a good demand for the largest sizes. Orders have recently been filled for eight spindle drills; these machines are 10 feet 2 inches long and weigh 5 tons. A spindle drill of wholly new design has recently been built for the Christensen Engineering Company of Milwaukee. The tool drives six 1 1/4-inch drills and the table can be adjusted 21 inches to take work 8 feet 5 inches in height. The firm are getting up designs for a complete line of sensitive drills and these tools will be a feature of their line in the future.

The Chisholm & Moore Mfg. Company report that the demand for their pneumatic cranes and hoists is heavier than at any time during the past year. The new additions to their plant have been put into operation and the first heat in their new malleable iron furnace, amounting to more than 8 tons, was taken off last Tuesday in 2 hours 50 minutes. A new corer room 50 x 50 feet will be put in operation in a few days.

The Cleveland Twist Drill Company experienced no let up in the demand for tools last month. The orders now coming in are running larger than in previous months. A portion of their new factory building has been put into operation and the balance is being equipped as fast as possible, nearly all of the machinery being produced in their own machine shop. The officers of the company are greatly pleased with the good results produced by the restaurant which has been equipped for the men in a portion of the new factory. It is stated that the men show their appreciation of their good treatment and that the very pick of the skilled workmen of the city are applying for employment in the new factory. The system is being watched with a great deal of interest by large factories in this city and a number of gentlemen from out of town have visited this plant for the purpose of inquiring into the results of the scheme. The company purpose to still further favor their workmen by the equipping of a free library, where books and periodicals will be loaned for home reading. An effort is being made by the company to induce the city library, one of the best in the country, to adopt a system of loaning books to the factory for this purpose.

The local branch of the Marshall & Huschart Machinery Company states that the activity in this section of the State shows no indications of abating and that orders which cannot possibly be filled for months to come are constantly being taken. Heavy tools of all kinds continue to have the call. Among the orders out of the ordinary recently turned in from this office was one for a 10-inch Gould & Eberhardt automatic spur gear cutter for the Brown Hoisting & Conveying Company of this city; also a large order for lathes, drills, shapers and other tools for the Star Drilling Machine Company of Akron.

The S. M. York Company, manufacturers and dealers, say that there was a slight let up in the orders for machinery the latter part of the December, but the call for supplies never varied. With the post radial drill which is the feature of their line they are three months behind on orders. A 10-inch grinder introduced a few months ago is proving a remarkable seller.

Peter Gerlach & Co., manufacturers of barrel and

stave sawing machinery, report that there has been no decline in the demand for their line; if any change the orders are growing larger. A large order for nail keg stave and heading machinery has recently been received from Tokio, Japan.

The Oster Mfg. Company say the demand for their adjustable die stocks is on the increase. Wm. C. Gregg of Honolulu, a very large dealer in plantation supplies, is in Cleveland and is making his headquarters with this company.

The Wellington Machinery Company of Wellington, manufacturers of soft clay brick working machinery and brick making supplies, report great activity in their field, their business being fully 40 per cent. greater than in previous years. They state that a large number of brickyards in various parts of the country, which have heretofore been able to get along with antiquated types, are being equipped with modern machinery. Much of their demand comes from abroad and several large machines of special pattern have lately been shipped to England, the English bricks being larger in size than those produced in this country. They are also enjoying a very large business in brick wheelbarrows of the ball bearing variety, they being the only concern in this country producing these goods.

The Cleveland Crane & Car Company are about four months behind on orders for cranes. The largest sizes are in greatest demand, although nothing of unusual size is being called for. There was no falling off in the demand during the past month.

The Snyder-Hughes Company, manufacturers of steam pumps, report no change in the demand for their goods. They are having considerable difficulty in being cared for on castings.

The Palmers & De Mooy Foundry Company have repaired the damage to their plant made by fire a month ago and by working nights are rapidly making up for lost time. They were obliged to turn away a large amount of work during the past few weeks, and a member of the firm stated that if they were to undertake to supply all demands it would require a plant three times their present capacity. At no time during the past year have they been obliged to solicit work.

H. J. Hartz, manufacturers of blocks and pulleys, says the demand is on the increase and that he is finding it impossible to keep up stock.

The Standard Welding Company are greatly extending the uses of their electric welding process, which has heretofore been employed almost wholly in the production of bicycle material. A venture which is proving a pronounced success from the start is the manufacture of chuck rings for machine tools. Their new ring is made of a strip of high quality steel, formed to the desired shape and the ends butt welded. The advantages claimed are that the ring can be tempered if desired, making it more durable than the malleable iron rings now in use; the new ring is also perfectly true. The Standard Welding Company have recently issued a booklet setting forth the possibilities of their process in various lines of manufacture. They claim that it is adapted to the production of hollow steel balls, welding axles, safe ending boiler flues, putting teeth in a screw or in any work requiring precision.

The Van Dorn Iron Works Company report an unusual demand for jail and prison structural work. Last week the company were awarded additional contracts amounting to nearly \$20,000 for remodeling the old portion of the county jail at Harrisburg, Pa. They are at work on extensive additions to this prison.

The Vulcanus Forging Company, who were burned out about two months ago for the second time within a year, started work last Monday morning in their new establishment. The factory is 150 x 125 feet and is equipped with the latest patterns of forging machinery. They have about \$20,000 worth of orders on their books to start with. At the annual meeting of the company a few days ago a change in stockholders was effected. J. Wintz, A. Scott and J. R. Blakeslee, Jr., sold out their interest to A. G. Hathaway and F. J. Patterson. W. B. Moxon, H. J. Melcher, Charles Hathaway and H. St. Clair Hathaway have also become stockholders.

The Cleveland Wire Spring Company report that their business is unprecedented for this time of the year. The call for springs for agricultural implements and machinery is especially heavy. Although large orders are being placed buyers are not contracting for later than July 1.

The Garry Iron & Steel Roofing Company report no decline in the demand for their class of structural iron work. They say that a number of projected office and public buildings in various parts of the country are being held over for a decline in the price of building material, but that the demand for material for factory building continues stronger than ever. Among other large contracts they are now furnishing the structural iron work for the large plant which the National Steel Company are erecting near Youngstown. The two new factory build-

ings which the Garry Company have recently completed commenced running full force a few days ago.

The River Machine & Boiler Company are working overtime and report an especially strong demand for marine boilers. They are at work on a large contract for Scotch marine boilers for the Craig Shipbuilding Company of Toledo. A very large beet sugar crystallizer has recently been completed to the order of E. H. Dyer & Co. of this city for a new beet sugar plant at Benton Harbor, Mich. A large electric charging machine has been completed to the order of the Wellman-Seaver Engineering Company of this city, to be shipped to Russia.

The Cleveland Elevator Bucket Company report that the demand for their buckets shows a steady increase. Among the outfits furnished during the past month was one for the 2,000,000 bushel elevator of the Great Northern Company at Buffalo, also one for the Buffalo Transfer Elevator of the same city, one for the East Side Iron Elevator Company of Toledo and for the American Malting Company of Erie, Pa. The Minneapolis Union Elevator at Minneapolis, one of the Pillsbury-Washburn elevators, is being equipped, while an outfit is being constructed for the Ogibie Milling Company of Winnipeg, Manitoba. They are also figuring on another large contract in the latter city.

The Reliance Gauge Mfg. Company, manufacturers of safety water columns and steam specialties, have sold out to the Standard Gauge Mfg. Company and the two concerns will continue in business under the present management of the latter company. It is also reported that the Reliance Mfg. Company, of whom A. J. Wright is manager, will consolidate with the other companies. M. F. Bramley, at the head of the Reliance Gauge Mfg. Company, was formerly a State Representative. He will go into the contracting business.

The City Foundry Company, manufacturers of light and heavy castings, have more business than they can accommodate and see no indications of a let up. A new addition is being erected which will considerably increase their capacity.

Reade & Bowler, dealers in second hand machinery, say that the demand for large tools, especially steam hammers, boiler shop tools and large engines, continues heavy. They have sold several steam hammers from 1000 pounds up to 4 tons during the past month. They have recently made several large purchases of heavy machinery, which will be placed on the market during this month. They also report a good demand for wood working and brass working machinery. At their Pittsburgh branch, recently established, several sales of large punches, alligator shears and bending rolls have been made.

Van Dorn & Dutton are from three to four months behind on orders for gears, with no decline in this demand in sight.

Horsburgh & Scott claim there is an increase in the demand for gears. They are experiencing an unusually heavy demand for gears for street railway purposes.

The village of Collinwood has prepared plans and will advertise this week for bids for a \$60,000 water works system and an \$18,000 electric lighting plant. Heretofore they have used Cleveland water and light.

Last Tuesday the Vulcan Iron Works of Toledo shipped to the Edison Reduction Works in New Jersey one of the largest steam shovels ever built.

The Cleveland City Railway Company are preparing to increase the capacity of their power house and will require a new engine of high horse-power. It is stated that \$60,000 have been appropriated for this purpose.

**The Carrie Furnaces.** — George Megrew, assistant general purchasing agent of the Carnegie Steel Company, Limited, of Pittsburgh, opened bids on Monday, January 8, for the construction of a large iron ore yard at Rankin for the Carrie furnaces, and an intake for the supply of water for the two new furnaces. Bids were opened for the driving of 2500 piles in the Monongahela River for an intake crib for the furnace water supply. A bricked tunnel about 8 feet in diameter will be driven from the river, about 600 feet, to the furnaces. It will be recalled that the Riter-Conley Mfg. Company of Pittsburgh have been given the contract for the two new Carrie furnaces, at Rankin, and have already done considerable of the excavating for the stacks. It is expected that these two furnaces will be built in the shortest time in which two furnaces were ever built before.

At the Youngstown works of the National Steel Company, in Youngstown, Ohio, but 48 turns were made during December, the converting mill rolling 4275 heats, with an output of 43,250 tons of ingots from which were rolled 12,911 tons of large billets and 24,730 tons of small billets, sheets and tin bars. The old blowing engine in the converting department of this plant is being replaced with a new engine, without loss of work, and it is expected the new engine will be connected up and started without loss of a turn.

## The Foundrymen's Association.

The regular monthly meeting of the Foundrymen's Association was held at the Manufacturers' Club in Philadelphia on Wednesday, January 3, the president, Thos. I. Rankin, occupying the chair. There was a large attendance of members, among them the following:

T. I. Rankin and W. H. Pfahler, Abram Cox Stove Company, Philadelphia; John A. Penton, *The Foundry*, Detroit, Mich.; D. J. Matlock, F. J. Tucker and Persifor Fraser, Jr., Wm. Cramp & Sons Ship & Engine Building Company; Wm. A. Taylor, Cramp's Brass Foundry; Geo. W. Moore and Stanley G. Flagg, Jr., S. G. Flagg & Co.; Thos. M. Allen, Eynon-Evans Mfg Company; Fred. A. Riehle, Riehle Brothers Traction Machine Company; L. McGrath, Thos. Devlin and Will Devlin, Thos. Devlin & Co.; W. Ditte, Rogers, Brown & Warner; Alfred Marshall, John Birkinbine, M. E., and Geo. T. Johnson, Juniata Foundry & Furnace Company; Antonio C. Pesano, Geo. V. Cresson Company; W. H. Echternach, Girard College, Foundry Department; J. W. Alexander, I. A. Sheppard & Co.; A. D. Wallace, E. E. Brown & Co.; W. W. Hearne, Matthew Addy & Co.; John Braun, John Braun & Sons; Geo. C. Davies and Dr. Edw. Kirk, Pilling & Crane; Wm. Kavanagh and J. J. Dinan, Moore & White Company; F. H. Graser, *Public Ledger*; Augustus Williams and Henry E. Asbury, Enterprise Mfg. Company; F. B. Lott and C. H. Holbrook, Davis Coal & Coke Company; Wm. Hanson, Pennsylvania Iron Works Company; J. A. Findley and T. W. Shields, Philadelphia Roll & Machine Company; R. K. North, North Bros. Mfg. Company; H. B. Taylor, Pettino Bros.; Ed. Bureau, Bureau Bros.; Wm. Sellers and Coleman Sellers, Jr., Wm. Sellers & Co.; Walter Wood, R. D. Wood & Co.; Daniel Waters, Goodell & Waters; Jacob B. Blankley and Sam'l A. Kinsel, Tioga Foundry Company; Henry Cross, Chambers Brothers Company; C. R. Baird, C. R. Baird & Co.; G. W. Barnhurst, H. Belfield & Co.; Thos. F. Maher, D. S. Creswell; Thos. Hobson and J. Henry Pepper, *The Iron Age*; Howard Evans, M. F. Carr and J. S. Hibbs, J. W. Paxson Company; C. R. Ellicott, C. R. Ellicott & Co.; A. J. Ennis, Ennis & Co., all of Philadelphia; H. Rotherham, Melbourne, Australia; Wm. Talmey, Lobdell Car Wheel Company, Wilmington, Del.; J. S. Stirling, Harlan & Hollingsworth Company, Wilmington, Del.; Geo. A. Messick, Fusey & Jones Company, Wilmington, Del.; Jas. Bailey, Wilmington Malleable Iron Company, Wilmington, Del.; Geo. Wiard, Wiard Plow Company, Batavia, N. Y.; J. O. Thomas, T. B. Harkins Foundry Company, Bristol, Pa.; Wm. P. Cox, Cox & Sons Company, Bridgeton, N. J.; Jas. B. Strain, Robt. Wetherill & Co., Chester, Pa.; Gifford Lewis, Chester Steel Casting Company, Chester, Pa.; C. K. Davis, Crown Smelting Company, Chester, Pa.; Edgar S. Cook, Warwick Iron & Steel Company, Pottstown, Pa.; R. C. Oliphant, Trenton Malleable Iron Company, Trenton, N. J.; E. Eldredge, chemist, Camden Iron Works, Camden, N. J.

The meeting being the first in the new year it was made the occasion of a dinner, the association's initial venture in this direction. After coffee and cigars had been served the business of the evening was taken up.

The Executive Committee in their report stated: "There seems to be nothing but prosperity all over the land, the different iron works being busy in all sections of this country and Canada. A similar condition is to be found in England, Germany and other European countries. It is to be supposed that this state of things will continue until such time as overproduction is in evidence, but when that will be no one can tell. The prospects are that 1900 will be the banner year of these good times. Some of our larger foundries are filled with orders for castings to such an extent that other foundries are being called upon to assist in filling them. The prices of pig iron, scrap and other material seem to be about as high as they have been at any time and there is no promise of reduction as yet. Foundrymen are urged, therefore, to demand a price for their products commensurate with these conditions."

The treasurer's report showed the organization to be in a good financial condition.

A letter from Geo. H. Hull, president of the American Pig Iron Storage Warrant Company, was read, in which he expressed regret at his inability to be present that evening to read a paper, as announced in the call for the meeting, but promising to read the paper at the February meeting of the association.

A communication from a New York concern asking for the experience of members of the association as to the use of 10 to 12 per cent. of ferro carbon in castings was referred to the next meeting.

H. Belfield & Co., Philadelphia, were elected to membership in the association.

Routine business being disposed of, the remainder of the evening was spent in listening to addresses from those present.

Chairman Rankin made an excellent toastmaster and introduced the speakers in happy terms.

Mr. Rotherham of Melbourne, Australia was one of the first speakers. In course of his remarks he said that in Australia, where he had lived for 20 years, there was but little casting done, but that little included the casting of a metal in which those present that evening perhaps would be little interested owing to their wealth—gold. The output of this metal, he said, last year amounted to over \$70,000,000. Speaking of industrial questions he said that he was particularly proud of the country of his adoption on account of the interest taken by its different governments in the labor questions. These questions, he said, between employers and employees were settled by the governments, and the arbitration and conciliation laws were in full swing. Since the law was passed and placed on the statute book, he said, there had been no strikes. The laborers had the right to appeal to a power called the Conciliation Board and state their case. If the decision of the board was not acceptable to both parties either party could appeal to the Supreme Court. Up to this time, he said, a period of six years, there had been no such appeal. He also referred to the step taken by the governments within the past 18 months toward building a nation by the formation of a commonwealth embracing all the governments. As a people, he said, Australians knew they were great, but their modesty was such that they hesitated to say so. The difference between an Australian and an American was this, he said: The former was naturally modest and slow to say what he thought or believed; the latter was not so inclined. He was great by his achievements, his country was great, he knew he was great and generally said so. Australia was a large country—larger than the whole of the United States exclusive of Alaska. Sidney was a city of nearly 500,000 people. Within a radius of 12 miles of her post office were hundreds of miles of coast line, accommodating large ships drawing 40 to 50 feet and enabling them to discharge on the streets of the city. Melbourne was, as George Augustus Sala had said, a marvelous city. It was a city of nearly 600,000 people and the streets as wide as Philadelphia's Broad street, some of them very much wider. Carts were not allowed to unload on the streets, therefore the streets were never disfigured by loading and dumping on the footways. The business of the country was mostly export. Between 1861 and 1891 the export business increased threefold, and between 1871 and 1891 twofold. In 1898 the imports were \$327,000,000, while the exports were \$358,000,000. It would be seen that any country whose exports exceeded its imports was proceeding in the right direction. As a country it was richer per capita than any other country and there was more money spent per capita. The output of gold in 1898 was \$62,000,000, but 1899 would probably have produced close to \$80,000,000. The wool clip for 1899 was valued at \$115,000,000. These facts were quoted to show that where the per capita production and the spending powers were such as existed in Australia that country should prove a good one for the manufacturer.

Ex-President Wanner followed. After listening to Mr. Rotherham he thought all would notice that there was a movement forward in his part of the world. Progress and advancement seem to be the order of things abroad. In regard to prices in the foundry trade he said that foundrymen must raise their prices themselves. Why should they crush each other in times like these? There was no occasion for it. It was confidence and determination alone which would uphold prices.

In introducing John Birkinbine to the company the chairman referred to his recent work as engineer in chief of the National Export Exposition. Doubtless, he said, the wonderment was general when it was announced that the exposition was to be opened on a certain day, and everybody knew that at the time of that announcement, only a few months before the date mentioned, no preparation had been made. The fact that the opening was made on time with everything ready was a tribute to the skill of Mr. Birkinbine.

Mr. Birkinbine, in a short and humorous address, spoke very highly of the zeal and earnestness of the men employed to carry out the details, and said that this enthusiasm contributed very largely to the successful opening. He referred to the fact that the whole enterprise was carried through from start to finish without loss of life or injury of any serious kind. In fact, he said the only injury he had heard of was a case of a lady visitor having some teeth accidentally knocked out, and it was not even known whether the teeth were false or not. Speaking of the meeting that evening he said he wished to congratulate the association upon its progress. In regard to high prices of materials he said that two years ago very few men were getting anything like a fair return for the labor employed and capital invested, but he would ask whether any member present could for one moment say whether the intrinsic value of pig iron had really doubled in two years. If that was so then they could look straight ahead. If not then they must watch for a time when matters would be different. He thought the whole condition of business should be considered in just the same light, and as to whether it was likely to prove continuous

and for the benefit and further progress of the United States.

Other speakers were George Wiard of the Wiard Plow Company, Thos. Devlin of Thos. Devlin & Co., E. S. Cook of the Warwick Iron Company, Alfred Marshall of the American Tin Plate Company, E. E. Brown of E. E. Brown & Co., S. A. Kensil of the Tioga Foundry Company and A. C. Pessano of the Geo. V. Cresson Company.

## The Marquette Range in 1899-1900.

ISHPEMING, MICH., January 7, 1900.—Some figures, comparisons and prognostications are given herein as to the oldest Lake Superior iron range. Not the least interesting portion of the story is the showing made of control of the range by steel making combinations. Of mines that have shipped during the past year over 50,000 tons all but four are either owned outright by manufacturing concerns or are so closely affiliated to such as to make their policy subservient.

And while the old Marquette for two years past has exceeded any prior outputs it is also important to note that a still further addition of several hundred thousand tons may be expected in 1900. While some of us look continually for the exhaustion of the Marquette it is, on the contrary, annually responding to demands by an increased tonnage, and may perhaps remain at flood tide for many years to come.

As stated in earlier correspondence, one company on the range achieved 1,000,000 tons, this being the Cleveland-Cliffs. This company have made an increase of 175,000 tons over their record breaking shipment of the year before, and the increase is all the more remarkable from the fact that this year they did not have such stocks of old ore on surface as aided their shipments of 1898. The bulk of the company's production came from Lake shaft, though the company are mining actively in the Salisbury, where they are down to the seventeenth level; at Cliffs shaft, where they have reached the seventh level; at Moro hard ore mine, at Tilden and at the recently acquired Volunteer and at Imperial. The Volunteer is hardly meeting expectations, the ore being yet so mixed as to interfere with its value. The Imperial will have a new shaft and stoping ground opened from the pit, while the Webster mine, adjoining it, will soon be opened by the same company. At the Michigamme, which is a very hard non-Bessemer magnetite, they are unwatering the old workings, which are 1100 feet deep. A very heavy ore crusher, 30 x 30 inch jaws, is to be installed here to break up the massive ore. With all this work in hand Cleveland-Cliffs are employing 1500 men, and enough additional operations are planned to raise the number by several hundred more. A vast amount of work has been carried on during the year in repairs and reconstruction. The company are the largest and one of the few remaining independent producers, but they do not retain their independent position because no efforts have been made to draw them into the ranks of the consumers' mines. Many and flattering inducements have been held out by more than one would be buyer during the past few months. W. G. Mather is president of the company and the head offices are in Cleveland. The Cleveland-Cliffs Company should be able to earn net the present year not much under \$2,000,000.

The Carnegie properties on the range have scored a wonderful advance. They are employing about 1950 men, mostly at the Lake Superior property. This latter mined more ore than in 1898, when it shipped 686,500 tons, but it carries over some and its actual shipments for the year are 4000 tons less than the previous year. The chief shafts are the Old Mine Hematite, Hard Ore, New Deposit and Sections 16 and 21. But little difficulty has been experienced during the past year in the mud overhead in Lake Angelina, and there is now a very heavy accumulation of gob above the miners. The Carnegie Company's Regent mines, the old Queen group, have made a satisfactory output, especially when it is remembered that it was only some seven months ago when the company secured the mines and pushed work. The output was 343,000 tons, which can probably be made 500,000 tons this year. These mines produced an ore that has come up markedly in value of late, an ore running from 60 to 62 per cent. iron and 1 to 1.12 per cent. phosphorus. The fee to this property is owned by the Arctic, Pioneer and Cleveland-Cliffs Iron Companies. The Carnegie interests are also about to sink a shaft to tap the ores recently found at the Hartford and will open the Riverside at Republic. The Bessie, at Humboldt, a high phosphorus limonite, is another of this company's Marquette mines and is a fair small property.

The American Steel & Wire Company are also active on this range and are the fourth shipper among the consolidations. From their Negaunee property 196,000 tons were taken, being about 2 per cent. above the preceding year. A new shaft is being sunk that will add materially to the mine's output another year. Much new ore is

being opened into. The same company have just taken the old Mesaba Friend, now the Consolidated, containing a large body of a very lean Bessemer, running under 40 per cent. iron. Joseph Sellwood, the general manager of this company's mining branch, has taken old Rolling Mill mine, which contains a quantity of 45 per cent. or thereabouts of a Bessemer hematite, and will probably be worked in somewhat close alliance with the company's interests.

From the Cambria and Lillie mines the Republic Iron & Steel Company mined 320,000 tons, an increase for the two mines of 13,000 tons. The company may perhaps retain their third place the present year.

The Winthrop, belonging to the National Steel Company, shipped 172,000 tons, a notable increase of 50,000. A shaft is being sunk and a crusher will be placed, and 1900's output will probably make a considerable further gain.

The Lake Angelina, affiliated with Jones & Laughlins but classed as an independent mine, gained 5000 tons in the year, with an output of 465,000. The mine is approaching its end, and a larger output can hardly be expected. Explorations are under way at Iron Mountain Lake to find a new mine, but with no startling success as yet.

The Champion, Republic, Jackson, Princeton, Star West, Richmond and New York mines were the remaining shippers of the range. The first gained 42,000 tons, to a total of 215,000, and is actually much improved underground. The second fell back 3000 tons, to a total of 137,000, and can hardly fail to make the loss permanent. The Jackson, the original Lake Superior Company, added 24,000 to its 1898 product, giving the satisfactory total of 79,000. Considerable new ore is being shown up and the future is fair. The Princeton at Swanzy made a wonderful output, considering, with 56,000 tons. The remaining three shipped small amounts, the New York entirely from old dumps. All these, together with old Brotherton, Beaufort and Barasa, East Barasa and Dexter, Minnesota Iron Company properties, are preparing for activity next season.

The range as a whole should easily ship more than 4,000,000 tons in 1900. There are to-day employed on the Marquette range 5000 men, a total that will be maintained all this year.

D. E. W.

**The Edgar Thomson Coke Pile.**—The Carnegie Steel Company, Limited, have given a contract to Patterson & Gibson, contractors, for the removal of the mountain of coke which has been stored at Bessemer for some years, and which was an object of much interest to passengers on the Pennsylvania Railroad trains going East and West. The pile is the largest quantity of coke ever stored, and was placed there for reserve supply in case of a strike in the Connellsville coke region. It is estimated there was sufficient coke in the pile to run the nine Edgar Thomson furnaces at Bessemer for 60 days, or longer. The pile is about 2000 feet long and 600 feet wide, and about 150 feet high. It contains approximately 500,000 cubic yards of coke, that will have to be loaded on cars within 60 days from January 15 next. The coke will be taken to the various blast furnaces of the Carnegie Steel Company, Limited.

**Information Wanted.**—Who makes the Halbe gas valve?

A curious case in which counterfeit coin was found to be more valuable than the genuine article is reported from South America. Some Argentine Government detectives have lately succeeded in arresting in Buenos Ayres a gang of coiners who had been for some time manufacturing and circulating false silver dollars of the 1895 currency. These counterfeit coins, however, were, on investigation, found to be of greater intrinsic value than the genuine dollars, having a larger proportion of silver than the debased dollars issued in 1895. The forgers made use of Brazilian silver pieces, and by passing them through their dies transformed them into Argentine money, the operation netting them a profit of between 30 and 40 per cent.

It is just 20 years ago that Thomas A. Edison gave the first public exhibition of his incandescent lamp in his laboratory at Menlo Park, N. J. His lamp factory at Harrison, N. J., is now turning out some 45,000 incandescent lamps a day, and the number in use all over the world is beyond reckoning.

On Saturday, January 6, another large sale of coking coal lands in Southern Fayette County was closed, by which the Republic Coke Company of Pittsburgh bought 2400 acres of coal lands for \$549,585.46. It is understood that works will be built on the property at an early date.

# HARDWARE.

## Condition of Trade.

IT is too early as yet to expect trade to have acquired much volume, but the year certainly opens with an excellent feeling and as much business as could be expected. There is a good deal of inquiry in regard to goods and a testing of the market on the part of prospective buyers, the result generally being the discovery of a firm and confident tone, and only in a few lines anything of a disposition to make concessions in price. With the revision of quotations, which is made at the opening of the year, after ascertaining the results of last year's business, a good many advances are being made by manufacturers, most of them of moderate extent and under the pressure of increased costs owing to the condition of the Iron market, and more particularly to their contracts for raw material, many of them being obliged to make new arrangements for their supplies. Where they have been selling the goods on the basis of low priced Iron and are now compelled to purchase at market rates, there is obviously substantial reason, especially in relatively heavy goods, for announcing higher prices. The matter of wages, too, is having its influence. While there has not been any general advance many manufacturers are paying higher wages to their workmen. The next week or two, it is expected, will develop more active business than is now doing, as travelers generally are soliciting orders, and the time has come when a good many jobbers and retailers will be completing their preparations for the season's trade. That the business will be of large volume is the confident expectation. The prosperity which prevails, as shown in the volume of business done by the retail trade throughout the country generally, and the fact that labor of nearly all kinds is well employed, indicate that there will be a large demand for goods. This will, however, doubtless be interfered with to some extent by the high prices, which tend to repress enterprise in some directions and to restrict sales. The continuance of a large export demand is one of the prominent features of the situation, especially as this demand, if looked after and taken care of, will undoubtedly assume much larger proportions. The attention which is given to it is one of the excellent indications of the present situation. There have doubtless been cases where foreign trade during the past year has been neglected by the manufacturers under the pressure of the domestic demand, which taxed their producing capacity, but, on the other hand, many manufacturers have followed the wiser policy and looking to the time when foreign markets will be exceedingly desirable as fields for their goods have refused to sacrifice their export to their domestic trade. Referring to this policy a gentleman prominently connected with export interests remarks that in his experience of over 30 years this is the first rate boom in which the American manufacturers have not killed the export goose. In pursuing this farsighted policy they have accordingly during the past year sent to foreign markets goods which might have been more easily disposed of at home, and have sold them at lower prices. Some of the large con-

solidations and combinations have taken this broad view of the situation, realizing that any neglect of business in foreign lands, even though now of small volume, will add greatly to the difficulty of securing trade a little later when the production of the manufacturers here, as it promises soon to do, exceeds the demand for home consumption. The extent to which manufacturers' facilities during the past year have been increased is, in fact, one of the conditions which is full of significance in regard to the future, both in the matter of prices and the extension of American trade throughout the world.

### Chicago.

(By Telegraph.)

Shelf Hardware is hardly to be called active, yet the movement is much better than usual so early in January. Traveling men are unable to do much business while their customers are at work on their inventories. Nevertheless the constant receipts of small orders for all kinds of Hardware show that the necessities of their trade are compelling dealers to keep up stocks. Traveling men are confident that this will be a year of very heavy trade. Country merchants are in good shape and so are their agricultural constituents. Great activity also prevails in the lumber and mining districts of the Northwest, causing a much greater movement of Hardware in those sections than during the dullness of a few years since. The demand is very much better for Tinware and House Furnishing Goods generally. Some advances have been made in prices, among which may be noted Steel Squares and Grindstones. The prospect of an advance in freight rates makes another general upward movement in prices expected before many days. Heavy Hardware is in excellent condition. The movement of all kinds of material from stock is lively and inquiries are being received for large quantities from all parts of this territory and from all classes of manufacturing consumers. Collections have probably never been better.

### St. Louis.

(By Telegraph.)

Some of the trade are still busy at stock sheets, but bright faces show pretty well what the results are expected to be. Salesmen have started out again and orders, also encouraging reports as to crop conditions, are coming in. Wheat is said to be in good shape. Early purchases and early shipments of seasonable goods are a feature. Wire Cloth is being freely bought, as the opinion prevails that the retail selling season will show a short supply. Prices are now \$1.50 with an occasional holder willing to sell at \$1.40. Window Screens and Doors are moving freely also. The 11 per cent. advance on Builders' Hardware is said to be well maintained. Higher costs of raw goods have also caused advance of from 10 to 20 per cent. on both Bristle and Tampico Fiber Brushes. Some special grades of Paint Brushes have been affected more than others.

## Notes on Prices.

**Wire Nails.**—The advance of 25 cents per keg in the price of Wire Nails, noticed in our report last week, is firmly maintained. Demand since the first of the year has shown a slight increase. The trade express themselves as pleased with the change in terms. Manufacturers' quotations are as follows, f.o.b. Pittsburgh; terms, 30 days, 1 per cent. off in ten days:

To jobbers in carload lots.....	\$3.20
To " in less than carload lots.....	3.25
To retailers in carload lots.....	3.35
To " " in less than carload lots.....	3.45

**New York.**—Local conditions in the Wire Nail market remain unchanged. Orders are largely restricted to small lots, but these are frequent, so that the aggregate results in satisfactory sales for this season. Stocks of Nails in jobbers' hands purchased before the advance still cause irregular prices for small lots from store. Quotations are as follows:

To retailers, carloads on dock.....	\$3.53
To " less than carloads on dock.....	3.66
Small lots from store.....	\$3.50 to 3.75

**Chicago, by Telegraph.**—Manufacturers have had only a light demand, which is to be expected after the recent sharp advance in prices. Jobbers report a moderate demand from their trade. Single carload lots are quoted on the basis of \$3.58, Chicago, and small lots from stock are held at \$3.68.

**St. Louis, by Telegraph.**—It is now said that to a greater extent than was supposed stocks of Wire Nails were found very low at the time the recent advance was made. No large buying is being done at present. Single carloads are quoted at \$3.58, base, St. Louis, and small lots at \$3.68.

**Pittsburgh.**—A fair amount of orders, but mostly for small lots, are being placed for Wire Nails at the advanced prices which went into effect on December 30. The trade continue to limit their purchases to immediate requirements. The American Steel & Wire Company have given their employees a voluntary advance in wages of  $7\frac{1}{2}$  per cent. The mills are running largely on stock to meet the expected spring demand. We quote, f.o.b. Pittsburgh, terms 30 days, 1 per cent. off in ten days:

To jobbers in carload lots.....	\$3.20
To " in less than carload lots.....	3.22½
To retailers in carload lots.....	3.35
To " in less than carload lots.....	3.45

**Cut Nails.**—The condition of the Cut Nail market is about the same as last week. In the recent change no price was announced for carload lots to retailers, and they assume that they are entitled to the carload price named. The change in terms meets the approbation of the trade. Manufacturers' quotations are as follows, f.o.b. Pittsburgh; terms, 30 days, 1 per cent. off in ten days:

Carload lots.....	\$2.50
To jobbers in less than carload lots.....	2.55
To retailers " " " " .....	2.65

**New York.**—The New York price of Cut Nails to jobbers appears to be well maintained since the recent announcement by manufacturers. Regular quotations are as follows:

To jobbers in carloads on dock.....	\$2.62
To " in less than carloads on dock.....	2.76
To retailers, " " " " .....	2.76
Small lots from store.....	2.80 to 2.85

While some jobbers assert that the prices to retailers as given above are adhered to, it is reported that during the past week \$2.65 has been obtainable for less than carloads on dock, and \$2.75 on small lots from store. After present local stocks are exhausted a stronger market is expected.

**Chicago, by Telegraph.**—No change has been made in Cut Nails. Jobbers continue to quote small lots from stock at \$2.80.

**St. Louis, by Telegraph.**—Prices still remain at \$2.80, base, as jobbers' quotation. The advance in Wire Nails has not yet been followed.

**Pittsburgh.**—We are advised that established prices on Cut Nails are being firmly held. The volume of business is fairly large, and it is reported that former users of Wire Nails are now using Cut Nails on account of the lower price. We quote Cut Nails at \$2.50 in carload lots and \$2.65 in less than carload lots, f.o.b. Pittsburgh, freight to destination added; terms, 30 days net, or 1 per cent. off for cash in ten days from date of shipment.

**Barb Wire.**—The recent advance of 25 cents in the price of Barb Wire is firmly adhered to. Domestic business is moderate, but mills are actively engaged in accumulating stock to supply the spring demand. Quotations for

domestic trade are as follows, f.o.b. Pittsburgh, net cash, or 1 per cent. off in ten days:

To jobbers in carload lots, Painted.....	\$3.65
To " Galvanized.....	3.80
To " in less than carload lots, Painted.....	3.67½
To " " " " Galvanized.....	3.82½
To retailers in carload lots, Painted.....	3.80
To " Galvanized.....	3.95
To " in less than carload lots, Painted.....	3.90
To " " " " Galvanized.....	4.05

**Chicago, by Telegraph.**—A good trade is being done by manufacturers in both Plain and Barb Wire. Large inquiries are especially being received for Plain Wire from heavy consumers. The confidence some of these have in value is shown by their efforts to place orders at present rates for shipments running to the middle of next year. Manufacturers, however, have not been inclined to entertain business of this kind, being unwilling to take orders for delivery further than six months ahead. The action of the American Steel & Wire Company in advancing wages  $7\frac{1}{2}$  per cent. on January 1 and also setting aside a portion of their earnings to cover cases of distress among their workmen is highly commendable. Quotations are as follows, Chicago delivery: Single cars of Plain Annealed Wire, \$3.98; Painted Barb Wire, \$3.98; Galvanized Barb Wire, \$4.18, with 10 cents additional for small lots from jobbers.

**St. Louis, by Telegraph.**—Sales are not reported unusual for the time of year. As stocks are not very large buying will later set in and the 25 cents advance helps to steady quotations made by those jobbers having low cost Wire. Painted in single cars is quoted at \$4.03 and \$4.18 is the price for small lots. Galvanized is quoted at 15 cents above these prices.

**Pittsburgh.**—Demand for Barb Wire continues light, but is expected to improve before long, when buyers will be placing orders for spring trade. We quote Painted Barb Wire at \$3.65 in carload lots to jobbers, with an advance of 15 cents for Galvanized, all f.o.b. Pittsburgh; terms, net cash 30 days, or 1 per cent. off in ten days.

**Smooth Wire.**—The Smooth Wire market is without change. Demand is light and prices are firm at the recent advance. Quotations are as follows, f.o.b. Pittsburgh; terms, 30 days, or 1 per cent. off in ten days:

To jobbers in carload lots.....	\$3.05
To " in less than carload lots.....	3.07½
To retailers in carload lots.....	3.20
To " in less than carload lots.....	3.20

**Pittsburgh.**—There is a moderate demand, which is expected to be considerably larger before long. We quote: To jobbers in carload lots, \$3.05; to jobbers in less than carload lots, \$3.07½; to retailers in carload lots, \$3.20; to retailers in less than carload lots, \$3.30, all f.o.b. Pittsburgh. The charge for galvanizing is 50 cents on sizes from Nos. 6 to 14 inclusive; on Nos. 15 and 16, 85 cents, and on Nos. 17 and 18, \$1.10.

**Steel and Iron Squares.**—A revised list on Steel and Iron Squares was adopted by the manufacturers under date January 5, the printed discount remaining as before—65 and 10 per cent. The new list prices are represented below in the list issued by Russell & Erwin Mfg. Company:

No.	Polished.	Steel and Iron Squares.	
		Nickel Plated.	Blued.
100.....	40.00	50.00	40.00
1.....	33.00	42.00	33.00
2.....	30.00	38.00	.....
2½.....	28.00	36.00	.....
3.....	27.50	35.00	27.50
4.....	26.50	34.00	.....
5.....	25.50	33.00	.....
6.....	24.50	32.00	.....
7.....	23.50	31.00	.....
8.....	24.00	31.50	.....
9.....	22.00	29.50	.....
10.....	20.00	26.00	20.00
11.....	19.00	25.00	.....
12.....	23.00	29.00	23.00
13.....	23.50	30.50	.....
14.....	23.00	30.00	23.00
15.....	300.00	325.00	.....
34.....	16.00	23.00	Add for Bluing \$3.00 per dozen, net.
		Iron.	
1.....	9.00		
2.....	11.00		
4.....	12.50		

The following is the revised list issued by Peck, Stow & Wilcox Company, who also call attention to their Blued and Copper Plated Squares:

<i>Steel Squares.</i>		<i>Nickel Plated Squares</i>	
Numbers.	Per dozen.	Numbers.	Per dozen.
100.	\$40.00	0100.....	\$50.00
1.	33.00	01.....	42.00
2.	30.00	02.....	38.00
2½.	28.00	02½.....	36.00
3.	27.50	03.....	35.00
4.	26.50	04.....	34.00
5.	25.50	05.....	33.00
6.	24.50	06.....	32.00
7.	23.50	07.....	31.00
8.	24.00	08.....	31.50
9.	22.00	09.....	29.50
10.	20.00	010.....	26.00
11.	19.00	011.....	25.00
12.	23.00	012.....	29.00
13.	23.50	013.....	30.50
14.	23.00	014.....	30.00
15.	300.00	015.....	325.00
31.	10.00	20.....	16.00
32.	12.00		
34.	16.00		
<i>Iron Squares.</i>		Discount. Per cent.	
1.....	9.00	40 and 5	
2.....	11.00	40 and 20	
4.....	12.50	40 and 35	

**Empire Forge Company.**—The Empire Forge Company, Lansingburgh, N. Y., have withdrawn former quotations and are quoting the following prices on goods of their manufacture; terms, f.o.b. Troy, N. Y., 30 days, or 2 per cent. for cash in ten days:

Empire Forges, without Belts.	40 and 5
Special Western Forges, with Belts.	40 and 20
Reliable " " "	40 and 35
World's Universal " " "	40 and 42½
Agricultural Forges.	40 and 25
Small Blowers.	35
Tuyere Irons, Western.	45
" Empire Adjustable.	35
" Duck Nest.	55

If crated 50 cents extra is charged on each Forge and if knocked down and cased \$1 extra.

**Scythes.**—An advance of 25 cents a dozen went into effect with the opening of the year on Scythes of all kinds, the prices and rebates to the larger trade remaining as before. Owing to the fact that a good many Scythes were carried over and the very radical advance in price which has been made by the associated manufacturers, which makes the trade reluctant to buy at ruling prices, it is not anticipated that the volume of business will this year be as large as last. We are advised that during the year ending August 31 last 100,000 dozen Scythes were made and disposed of by the manufacturers, and a conservative estimate of the business this year puts it at 80,000 dozen.

**Paris Green.**—The Paris Green market opens strong at the quotations herewith given. The prices are the highest ruling in July, 1899. Some manufacturers are charging others than their regular customers  $\frac{1}{2}$  to 1 cent advance on these figures, while other makers are filling all orders at these quotations. In view of the high value of raw materials an increase in the price of the finished product is not improbable. Inquiries from purchasers are numerous and some orders have been placed. Quotations are as follows:

In Arsenic kegs or casks.....	Cents.
1/2 kegs, 100 to 175 pounds.....	13
" kits, 14, 28, 56	13½
" paper boxes, 2 to 5 pounds.....	14%
" " 1 pound.....	14½
" " $\frac{1}{2}$ " .....	15
" " $\frac{1}{4}$ " .....	16
" " $\frac{1}{8}$ " .....	17

**Binder Twine.**—Soliciting and accepting orders by Binder Twine manufacturers did not commence as early this season as last. The market then opened on the basis of 8½ to 8¾ cents per pound for White Sisal Twine. Prices were guaranteed, showing a strong desire for orders on the part of manufacturers. This season buyers are slow in placing orders at the high prices ruling, although manufacturers intimate that prices may be higher. It is estimated that there is not as much Twine being made as there was at this time last year and that considerable of last season's stock was carried over by manufacturers. Eastern manufacturers are quoting the following

prices on Binder Twine in carload lots, f.o.b. New York, Philadelphia or Boston, with an advance of  $\frac{1}{4}$  cent per pound for less than 10,000 pounds and an advance of  $\frac{1}{2}$  cent per pound for over 10,000 pounds and less than a carload:

White Sisal, 500 feet to pound.....	Cents.
Standard, 500 feet to pound.....	11½
Manila, 600 feet to pound.....	11½
Pure Manila, 650 feet to pound.....	14½

**Paints and Colors.—Leads.**—The market for White Lead in Oil is strong at the advance of January 2. The usual amount of orders were placed, it is understood, before manufacturers announced the last advance in price. A large spring trade is anticipated, for which makers are preparing. Quotations are as follows: In lots of less than 500 pounds, 7 cents; in lots of 500 pounds and over, 6½ cents per pound.

## Hardware Organizations.

### Pacific Retail Hardware Association.

As already announced, the second annual meeting of the Pacific Retail Hardware Association will be held at Chico, Cal., on the 17th and 18th inst. From assurances received by the secretary a large attendance is expected, who will be handsomely entertained by the Hardware merchants of Chico, which is better known in that section as the City of Roses. On the evening of the 18th a banquet will be tendered the visitors at the Park Hotel. The local Committee of Arrangements, consisting of L. L. Hubbell, William Earll, J. H. McFeeley, and A. L. Nichols, are doing everything in their power to make this the banner meeting of the association.

### Wisconsin Retail Hardware Association.

The Wisconsin Retail Hardware Association has just issued the official programme of the fourth annual meeting of the organization at the Republican House, Milwaukee, on February 7 and 8 next. The programme is issued in the form of a pamphlet, comprising 40 pages, is well printed and attractively gotten up, and reflects credit on its compilers. It has been sent out to the trade in a large manila envelope, on the address side of which in the upper left hand corner is the injunction: "Don't Forget, February 7 and 8."

Besides the programme of the convention, referred to more particularly below, portraits of the eight officers of the association are given, with a reference to its object, constitution, by-laws, resolutions of the Northwestern Retail Hardware Association, list of some of the Hardware associations of the country, &c. The pamphlet also supplies an imposing list of the members of the Wisconsin organization, the membership numbering nearly 300, scattered over more than 150 towns of the State.

The annual gathering will commence with a meeting of the Executive Committee on Wednesday, February 7, at 11 a.m. In the afternoon a general meeting will be held at which addresses will be made by President Montgomery, Vice-President Sheldon and ex-President Hughes, reports read by Secretary Peck and Treasurer Schlegelmilch, and papers presented by several members, including C. Krembs of Stevens Point. On Thursday, the morning session, after some routine business, will be devoted to "Talks on Insurance," paper by R. H. Suettinger, entitled "Doing a Cash Business," and Question Box discussion. The afternoon session will be an open one and a reception will be given to jobbers and manufacturers present, who will be invited to address the meeting. Papers will be read by John Hughes and R. L. McNamara, after which there will be a discussion of the contents of the Question Box. A feature of this session will be the appointment of a committee to confer or correspond with the Iowa and Illinois associations concerning their union with the Northwestern Association, which now comprises the States of Wisconsin, Minnesota and North Dakota.

It will thus be seen that an interesting order of exercises has been prepared and a large representation of the trade is expected.

## Manufacturers' Associations and Combinations.

**I**N the case of the associations or agreements of one kind or another for the regulation of prices, we know from observation the causes—reckless competition and overproduction—which have led to the formation of these associations, and it does not require much prescience to forecast a future which must necessarily differ from the present unstable condition. Of course it is easy enough to pull together when orders are plenty and there is no inducement to cut prices. The crucial test will come when demand falls off and it becomes a question of getting business. Such associations as have not by that time progressed into more complete consolidations cannot be expected to endure the stress and strain of a fight among their members for business, and will have to face the question of disintegration and separation into their original units.

**COMBINATIONS.**—Experience has shown that no bonds save those of a common merging into one organization, which is sure to stimulate competition, can long hold together an association of competitors. The general features of these associations, for their name is legion, are very much alike, and their weaknesses are just what might be expected under the circumstances. What they lack most of all is a dominant, controlling spirit, who at once rules and preserves harmony. It is almost a truism to say that a personality of this nature is the first requisite in any concern which hopes for extended success. Too frequently in these price associations a man of this sort is out of the question from among their own numbers, because of natural jealousies and personal differences; so recourse is had to an outsider who often is a professional promoter, with little or no knowledge of the business, but with a large share of diplomatic tact and skill. This promoter is also pretty sure to be an opportunist, so that some of the salient features of these associations reflect his ideas, and are notable rather for expediency and the taking of present profits than for any long headed plans for the future.

**ADVANCING PRICES TOO FAST.**—The first mistake is that of advancing prices too fast and too greatly, in forgetfulness of the experiences of the past that are fresh in the memory of all. The fact that the sure end of this plan is more competition and in the end a state of affairs much worse than in the beginning seems to be persistently ignored.

**REGULATING SELLING PRICES.**—Another mistake is the attempt to regulate the selling prices to be made by the jobber. The idea certainly is conceived in the right spirit, and would be invaluable if it was practicable, which it is not, and never will be till human nature is reconstructed. Even its advocates have no better plea for it than that it averages fairly well and is better than nothing at all, losing sight of the far reaching evil and retroactive effect of a plan that means an observance of a contract only when it is expedient to keep it.

**PENALTY FOR BUYING OUTSIDE.**—Another mistake is that of granting the best terms only to those who refuse to buy outside of the association. This is both unwise and impolitic, for any pressure, save that of mutual interest, which the association brings to bear upon its customers, is sure to create resentment and to defeat its own end.

Of course these objectionable features are not peculiar to all the associations, but are so pronounced in some of them as to call for notice. On the other hand, the associations as a whole have made some pronounced strides of late. They are certainly much more harmonious than at first, are holding well together and are gradually sinking their personal differences. The members have learned to know and respect each other, and this alone is a most desirable result.

**UNSETTLED QUESTIONS.**—There are, however, a number of unsettled questions with which they are dealing in a tentative way, such as methods of regulating prices,

as, for example, by classified lists of dealers, quantity discounts, or one price to all comers. The effect of combinations and relatively high prices in stimulating new enterprises in the same lines is still to be seen, many of the organizations being in the field too short a time as yet to indicate much in this direction. The influence, too, of popular feeling toward combinations and pools remains to be seen.

As these associations now stand they are to be regarded as experiments, often doubtful ones full of the weaknesses of expediency and opportunism, but still as efforts looking to the protection and benefit of the manufacturers, with whom the problem of making and marketing goods at a living profit is a serious one. While beneficial results may be expected it seems too much to anticipate that anything can be accomplished which will finally eliminate competition and hold the market permanently under control.

## Sixth Annual Sportsmen's Show.

**P**REPARED are well advanced for the Sixth Annual Sportsmen's Show, to be held in the Madison Square Garden, New York, March 1 to 17, inclusive, under the auspices of the Sportsmen's Association. Following the marked departure in plan and scope of last year, the management will build up and improve the exhibit along the same lines. The game park will occupy the same location as in 1899, but will be laid out more symmetrically and attractively, and contain a greater number of choice specimens of big game than ever before.

Power launches and sportsmen's craft of various styles and designs will occupy a space 75 x 10 feet.

Near by will be an ideal canoeist's camp similar to the one which attracted hundreds of canoeists to the annual meet of the National Canoeists' Association at the Thousand Islands, seasons of 1899 and 1898, the exhibit being in charge of a competent member of that association, some rare relics of past meets and fine specimens of the canoe builder's art being promised.

The artificial lake will be surrounded by a rustic hedge 18 inches high, and as the floor of the Garden will be removed, leaving the surface one of leaf covered earth, the pool will appear as in the woods. If this lake will be conducted the aquatic competitions, swimming, water polo, &c. A hunter's camp will be located upon the hill at the eastern end of the lake, the drop this year representing a superb glimpse of the Yosemite Valley. On one side of the Lake will be the aquaria, in charge of the New York State Fish and Game Commission. On the opposite side of the lake will be exhibits of live game birds and carnivorous game animals. The trap shooting events will be decided on the roof, while the rifle and revolver ranges will be located in the basement, as heretofore.

The leading exhibitors of sportsmen's supplies and equipment will be fully represented, and many attractions are being arranged for in addition to those referred to above.

**T**HE STOWELL MFG. & FOUNDRY COMPANY, South Milwaukee, Wis., have increased their stock to \$175,000. They have during the past year added a Malleable Iron foundry and made a number of changes and improvements in their plant. The officers and stockholders are the same as in the past—namely, John M. Stowell, president, who is also president of the Filer & Stowell Company, Milwaukee; Geo. P. Jones, vice-president, also president of the Jones Car Door Company, Chicago, and Chas. E. Sammond, secretary and treasurer. Besides operating the two foundries, Gray and Malleable Iron, of this concern, they manufacture a line of Hardware Specialties, consisting chiefly of Door Hangers and Rail, Hot Air Registers and Ventilators. This company have recently opened branches as follows: Chicago, 91 Lake street, A. W. Wagner in charge; London, Ontario, Chas. E. Santo; New York City, S. A. Davis. It is reported that the company contemplate further enlargements and improvements, as their business has considerably outgrown their present quarters and doubled within the last year.

## British Letter.

FROM A SPECIAL CORRESPONDENT.

**A**MERICAN Hardware exporters might do worse than watch carefully the proceedings of the Article Club of Great Britain. This club consists of a number of manufacturers, each having a special line of manufacture and therefore not trenching upon any other member's business. They meet together for dinners and discussions, when prominent representatives of other countries address them. Only recently the Servian Minister was their guest, and he gave them a lot of good advice how best to capture the Servian trade. They made it a point to make the gentleman's personal acquaintance, with the result that his office is now open sesame to them, and I have no doubt he will gladly at any time facilitate business with his own country. For two or three months this year the Article Club held an exhibition at the Crystal Palace of the products in which their members were interested, and many were the merry parties, with business at the end of it, who journeyed down there in company with the genial secretary. At the present moment the club, or at any rate the secretary, is pursuing an even more ambitious task. He is chaperoning the Chinese Ambassador round all the industrial centers of Great Britain. The Ambassador is a student of no mean attainments and has added considerably to his information by means of this tour. We may take it for granted that the factories belonging to the members of the Article Club were not passed unnoticed by our Celestial visitor. And if I know anything about their personnel they will push home their advantage. The Ambassador has already been to Sheffield, and has learned a great deal about the Sheffield Cutlery industry, and has not been slow to indicate how the Chinese trade can be captured. The Mayor of the city and leading members of the Corporation have met him with all the pomp and circumstance due to his exalted station, and I learn that his visit to Sheffield has, from the British point of view, been entirely successful. During the first week in January the Ambassador will be received by the Mayor and Corporation at Birmingham, the very center of the British Hardware trade. We are certainly moving apace. It only remains now for the American manufacturer to capture some Ambassador at Washington and tote him round New England, Pittsburgh, Cleveland, Philadelphia, &c. Perhaps the Japanese Ambassador would do. Only the other day I was reading an interesting report by a Japanese diplomatic attaché on the industries of the United States.

### Labor and Prosperity at Sheffield.

The Cutlery and Steel trades of Sheffield are now in the awkward predicament of being unable to meet the demand made upon them. Not because their productive capacity is inefficient, but because wages are now so high, particularly where hand labor is concerned, that they can only get their employees to work three or four days a week. The Cutlery trades are perhaps unique in this respect that hand labor is a very large constituent part of the industry. So that when the skilled hand worker gets independent, earns high wages and wants a holiday, there is no one to say him nay, let the result be what it will to his employer. The broad result is that many foreign imports, particularly from Australia, Russia and Japan, are unfilled. The Germans are taking advantage of the situation, and I dare say there may be some Japanese buyers ready to consider any offers from American houses.

### About Brass Founding.

Another industry similarly affected is the brass founding. At the present moment the masters and men, both organized to the last button, are facing one another in a by no means friendly spirit. There is a Board of Conciliation, not only for the whole trade but for each section of the trade, but American brass founders may rely upon it that there will either be an advance in the

wages of the British brass worker or there will be a strike of a terribly destructive character.

### Wages of European Metal Workers.

Every metal manufacturer in the United States affectionately inquires of every traveler what wages are paid in Europe. It is a useful and necessary item of information and by no means easily obtained. Nor does it follow that low wages mean effective competitive capacity. It may almost be asserted that because great productive capacity means great mechanical capacity, therefore low wages may indicate a complete incapacity to compete with nations where industry is highly developed.

Hitherto, however, every country, or even every district in each country, has a tendency to specialize. If wages are low in districts where metal products are thus specialized the wage rate is an important consideration which competitors must take into account. Wages in the United States and in Great Britain in the metal trades, with very few exceptions, do not vary very much. Of course the wage rate in large centers of population is higher than elsewhere and this remark applies equally to the States. I need not, therefore, detail the average wage rates in Great Britain, but American metal manufacturers who are cultivating the European trade or are competing with French, Belgian or German work in other parts of the world, particularly in China and South America, will be interested in comparing the average wages in the metal trades in Europe.

**I**N SWEDEN the average weekly wage of skilled mechanics in the manufacture of iron and steel is \$5.90; in the engineering works and foundries, \$5.70, while Tin Plate workers average \$7. In Copenhagen pattern makers earn 90 cents a day, iron founders and machine makers, 84 cents; smiths, 90 cents; braziers a few cents over the dollar; coppersmiths, 95 cents; tin plate workers, 95 cents; stove fitters, \$1.35; file cutters earn from \$4.50 to \$5 a week on piece work.

**WAGES IN GERMANY.**—Wages in the metal trades throughout the German Empire are far from uniform, and I can therefore only indicate the average wages in various districts. Mechanics "with artisans' training" will earn in the German railway works 65 to 70 cents time work, and on piece work between 85 and 90 cents per day. At Altoona, on the Elbe, a busy engineering and metal center with great facilities for exportation, tinsmiths and mechanics will earn from \$1 to \$1.50 per day, the average being about \$1.25. At the same place 525 fitters working 20,035 hours earned between 75 cents and \$1 per day, 25,179 hours were at the rate of \$1 to \$1.25, while 9739 hours were rated at \$1.25 to \$1.50. The wages of the smiths average \$1.25, boiler smiths slightly higher, molders, \$1.25; metal heaters obtain \$1.75 per day; turners, \$1.50; coppersmiths, \$1.50; pattern makers between \$1 and \$1.25. Metal manufacturers interested in ascertaining with greater exactness the wages of metal workers in the German Confederation would do well to procure the report of the commission sent to Germany three years ago by the Iron and Steel Institute of Great Britain. Since, then however, wages have slightly advanced.

**HOLLAND AND BELGIUM.**—In Holland wages appear to be unusually low, turners, planers, fitters and iron workers on Government contracts only securing about 8 cents an hour. In Belgium in the blast furnaces fitters are earning 80 cents a day, smiths the same, smiths' strikers, 50 cents; turners, 70 cents. In the engineering and metal trades in the principal industrial centers of Belgium, a few years ago, fitters, turners, planers, molders, smiths, locksmiths were earning 90 cents a day, but wages have since then advanced so that probably \$1.15 would be about the mark. The wages of locksmiths are slightly under these figures, but toolsmiths' wages rule higher. Wages are also low in Chain and Bolt making, and for some strange reason in the manufacture of Guns and Revolvers, at Liège, wages rule

even lower yet. This may partially account for the tremendous export by Belgium of Guns.

**FRANCE.**—France is turning out some excellent metal work, and it is significant how cheaply the men work. Workers in the manufacture of Iron and Steel in the district of Paris earn less than \$400 a year, while \$250 a year would represent the provincial average. In the engineering trades the provincial mechanics earn slightly more than this, but the provincial wage is at about the Parisian average. Workers in metal wares will only earn about \$350 a year in Paris and \$250 in provincial France. Sheet rollers will earn on time work 12 cents an hour and on piece work 15 cents; pattern makers, 18 cents; iron molders, time work, 13 or 14 cents, and piece work, 18 to 20 cents per hour. Locksmiths will earn about 14 cents in Paris and 8 cents in the provinces per hour, turners, fitters, planers and boiler makers average about the same, while hollow ware turners, stampers and punchers, planishers, temperers, coppersmiths, tinsmiths and spring grinders will earn from 10 to 15 per cent. more.

Wages in Switzerland of the same class of work would appear to be slightly higher.

**AUSTRIA.**—American exporters who are cultivating a trade in the Levant and Southern Russia will find themselves competing with Austria. If wages were the only competitive test Austria would surely carry all before her, for in the metal and engineering trades wages are extraordinarily low. An iron molder does well if he gets \$4 a week; workers in bronze goods do not average \$3 a week; machine workers will earn about \$3.25 a week, and these low figures do not appear to be exceptional. In the engineering works at Brünn, in Moravia, pattern makers will work for 8 cents or less an hour; iron molders can be got in plenty for 7 cents, turners, 8 to 10 cents; planers, drillers, borers, 7 cents; fitters, 6 to 8 cents; smiths the same, but tinsmiths will earn 10 cents.

I have dug up these figures from the first annual abstract of foreign labor statistics just published by the British Board of Trade. A few years ago they represented on the whole a high average, but I have slightly added in many cases where I know that wages and the price of material have advanced. They are not of much utility for comparative purposes, but are interesting as showing the condition of the metal trades in the chief industrial countries in Europe.

### Yale & Towne Mfg. Company.

**T**HE YALE & TOWNE MFG. COMPANY, whose offices are at 9 to 13 Murray street, New York, having extensive plants both at Stamford and Branford, Conn., informed their employees at Branford on the 6th inst., that plans are under consideration for the consolidation of the two plants by transferring the Branford business to Stamford. The growth of the company's business necessitates extensive additions to both plants. The principal plant is at Stamford (30 miles from New York City) and is of the best and most modern construction, with ample room for expansion. The Branford plant, on the contrary, is old, not well planned, and so arranged as to make its extension both difficult and expensive. Under these circumstances and in view of the fact that the products of the two plants are very closely related, and of the further fact that their consolidation would effect large economies, the company have about decided, in making the enlargements now needed, to consolidate the two plants at Stamford, and to provide there all of the facilities which their extensive business requires.

It will require a year and probably longer to make the proposed changes and additions to the Stamford plant, and meantime business will be continued at Branford as heretofore. Inaccurate rumors of these matters having obtained circulation the company thought it best to inform their numerous employees at Branford as to the plans which are under consideration, and to explain that, if finally decided on, these will require much time for their accomplishment, and that therefore they will not

immediately affect the interests of the Branford force. When the change is made the company expect to offer employment at Stamford to all of their Branford employees who may be willing to follow the transfer of the business to Stamford. During the past year from 500 to 600 persons have been employed in the Branford Lock Works, which, as above stated, are owned and operated by the Yale & Towne Mfg. Company.

### Hardware Exhibits at the National Export Exposition.

#### First Article.

**A**T the National Export Exposition recently held in Philadelphia, where it had a successful run of ten weeks, there were a number of very creditable exhibits made by manufacturers of Hardware, Cutlery and kindred lines. Some of these are illustrated herewith; others will appear in succeeding issues.

#### The Reading Hardware Company,

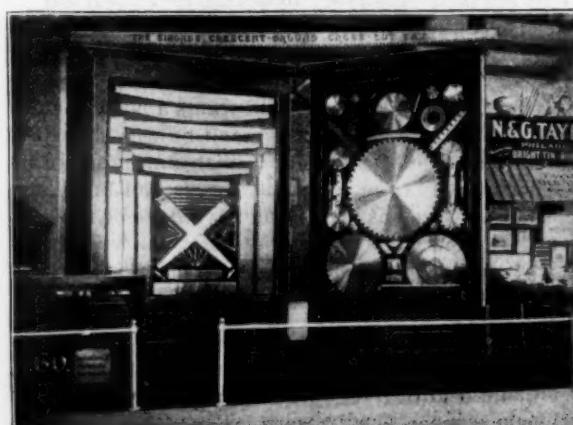
Reading, Pa., had a very extensive exhibit of Builders' Hardware, and their location fronting on two aisles afforded a good opportunity for display. A neat oak



railing, curtained to the ground, formed the front of the exhibit, while the back or rear was formed of massive showcases, also of oak. Above the railing were displayed some well arranged sample boards covering for the greater part the ordinary specimens of their Builders' Hardware and Locks. The rear showcase was used to show many of the finer grades of Locks, Knobs, Front Door Fittings, and other goods, and numerous mounted specimens were shown to advantage. Vassar Cylinder Locks were given prominence in the display and attracted considerable attention. The exhibit won the silver medal and diploma.

#### The Simonds Mfg. Company,

Fitchburg, Mass., occupied a corner space of liberal proportions with an exhibit of their manufactures. With



in a neat pipe railing and forming a background to the exhibit were two immense cases in which were shown Circular Saws, Band Saws, Planer Knives, Gauges,

Tenoning Saws, Gang and Mill Saws, Cross Cut Saws and Hack Saws. Near the front and running the width of the exhibit was a counter showcase containing Veneer Saws, Molding Cutters, Planer Knives and other of the company's productions.

#### The Philadelphia Lawn Mower Company,

Philadelphia, had a splendid exhibit of Lawn Mowers, covering all the styles they make, from the smallest to



the large Horse Mowers. A new pattern shown was the XX, made in four and five knife styles, with 12-inch wheels. Another new Mower shown was a Horse Mower, very handsomely decorated and claimed to be particularly strong in its construction. It was braced with heavy irons backward and forward and appeared to be a machine of more than ordinary large size. Still another new Mower was the Dewey, a medium priced machine with a four-knife cylinder. This Mower was decorated in the national colors. The company's Eight-Knife Golf Mower attracted much attention from all interested in the popular game of golf and other field sports. The exhibit was artistically arranged and was surrounded by a handsome nickel plated railing.

#### North Bros. Mfg. Company,

Philadelphia, had a large exhibit at the intersection of two main aisles. A low counter, handsomely finished in cherry, formed the fronts of the exhibit, cupboards



under the counter proving convenient for storage purposes. On a shelf at the rear of the exhibit and along the end sections of the counter were arranged Gem, Crown, Blizzard and Shepard's Lightning Ice Cream Freezers. Under the shelf at the rear were displayed their Improved Philadelphia Power Freezer and Double Action Crown Freezers for operation by power. On the counter to the right of the front a line of Fluters was shown, including the Knox, Crown and American Fluters, and Hand Fluters. In the center of the exhibit was a revolving column on which were shown in an arrangement covering neat designs the various styles of

Yankee Drills and Screw Drivers made by the company. Considering the fact that Tools of this kind do not lend themselves readily to decorative schemes, the designer of the column is entitled to much praise. On the top of the column was a small effigy of Uncle Sam, with a Yankee Screw Driver in his hands.

#### Bommer Bros.,

Brooklyn, N. Y., had a very interesting exhibit. Their display was shown in a large three-fold case or cabinet of cherry, and was made up entirely of their Bommer Spring Hinges, in all the different finishes. Tables in front of the exhibit were used for the display of different patterns of the Hinges mounted on door sections. Their planished steel line created much interest, particularly in the bronze plated and antique copper finishes, and also the antique copper sand blast on steel, on account of the reasonable prices in connection with the



beauty of finish and workmanship. The japanned on steel line also attracted attention and in fully polished steel goods there were some fine examples of bronze, antique and copper, nickel and silver plated finishes. The manufacturers were awarded the silver medal and diploma.

#### The Clinton Wire Cloth Company,

Clinton, Mass., had a large exhibit comprised of the various Wire Goods they produce. The exhibit fronted on two aisles, and was railed off by sections of their Electrically Welded 5-foot Fencing, the fence posts at one



entrance being used to carry a large sign. Inside, grouped in different ways, were coils and rolls of the various kinds of Wire Cloths made in the company's works, in steel, iron, brass and copper. Patent indented punched steel segments for Coal, Ore and Stone Screens.

Perforated Metal Sheets in brass, copper and zinc, Sifting Screen Netting, Steel Battery Cloth, and Galvanized Netting of all kinds were also displayed. Across the center of the exhibit was a plaster section of fire proof partition, made from Clinton Wire Lath and Electrically Welded Wire Fabric. On the floor were to be seen various sizes of the Wire Mats made by the company. The exposition silver medal and diploma were awarded to the company.

### Ehler Goettsche.

**E**HLER GOETTSCHE, secretary of the Chicago Retail Hardware Dealers' Association, died of pneumonia at his home in that city on Christmas Day. Mr. Goettsche was born in 1858 in Schleswig-Holstein, Germany. He learned the trade of machinist and pattern and tool maker, and became assistant engineer on the Hamburg-American Line of steamships. After several trips to this country he concluded to stay in 1881 and went to Chicago. After working for Wm. Deering & Co., manufacturers of Harvesting Machines, for five



EHLER GOETTSCHE.

years, he opened a Hardware store on Chicago avenue and then removed to 1049 Milwaukee avenue, where he continued until his death.

Mr. Goettsche was an enthusiastic and indefatigable worker in the cause of Hardware organization, and was one of the leading spirits in the formation of the Chicago association, which is, in fact, the outgrowth of the movement which Mr. Goettsche inaugurated in 1892, when he visited a number of Hardware merchants in his vicinity with a view to securing agreement in the matter of closing their stores on Sundays. The acquaintance thus begun and the better feeling immediately created caused a desire for the establishment of an association, not only to maintain Sunday closing, but to secure other reforms. An organization was accordingly effected in 1893 under the name of the Hardware Dealers' Association of the Northwest Side. It was thus strictly of a local character, and designed to include only the merchants of a particular section of the city, but subsequently its scope was broadened to embrace all the dealers in the city and the name changed. Mr. Goettsche was elected secretary, which office he continued to fill with conspicuous ability until the time of his death. Mr. Goettsche was also a member of the Buying Committee of the association and was instrumental in making joint purchase of goods a feature of their work.

Mr. Goettsche also bore a conspicuous part in the organization of the Illinois Retail Hardware Association last summer, and was elected a member of the Executive Committee.

## Banquets of the Trade.

### Smith & Hemenway Company's Annual Dinner.

Smith & Hemenway Company, 296 Broadway, New York, gave the first annual dinner to their employees, between 30 and 40 of whom were present, in the rooms of the Hardware Club, on the evening of January 6. It was a very enjoyable occasion and participated in by a number of ladies, some wives of the company's officers and employees, and a number belonging to the force itself.

The guests were ushered into the dining room at 6.30 p.m., coffee and cigars being served about two hours later. About this time, W. P. White, president of the Utica Drop Forge & Tool Company, Utica, N. Y., who had been invited to preside and act as toastmaster, after telling a number of excellent stories in a very felicitous manner, which put the assemblage at their ease, called on some of the leading personages there for something in the way of a contribution to the evening's entertainment, Mr. White's happily worded address having an interestingly business flavor very applicable to the occasion. Landon P. Smith, president of the Smith & Hemenway Company, after some stories and jocular remarks, referred to their business hopes and aims, John F. Hemenway, treasurer, following in a similar vein.

Then the heads of bookkeeping, shipping and other departments, together with some representatives of the traveling force, acquitted themselves very creditably, revealing a singleness of purpose for the success of the company. This in a measure was but the continuation of a regular custom, the employees from the highest to lowest every Saturday afternoon about 4 o'clock spending an hour and a half offering suggestions and discussing methods of efficiency in the conduct of the business, after the week's work is done.

Another feature of the house is a system of premiums and fines among a portion of the force, contingent on their accurate or inaccurate performances. The company, in addition to their own goods and specialties, market the production of the Utica Drop Forge & Tool Company, Ericsson Telephone Company, and Swedish Razor Company. H. Lawrence White, manager of the Utica factory, was present as a guest.

### Wm. Frankfurth Hardware Company.

On Friday night, 5th inst., Wm. Frankfurth Hardware Company, Milwaukee, Wis., gave a banquet to 35 of their traveling men and heads of departments. The president, Lorenz Maschauer, in his opening address, paid a glowing tribute to the memory of William Frankfurth, by whom the business was founded in 1861. He was followed by Erwin Foerster, secretary of the firm, who complimented the efficiency of the salesmen, and thanked them for the very satisfactory results secured during the year just closed. Frank S. Rost spoke of the loyalty of salesmen to employers, and supplemented his remarks with a number of typical drummers' yarns. Toasts were given and stories told by Fred Hayden, Henry M. Gay, C. G. Drummond, G. P. Plischke, John O. Jorstead, Victor Hustling, Rudolph Clauder and Lorenz Frankfurth. The closing toast, in behalf of the employees, was gracefully given by Walter Weisskirch, the genial cashier of the firm.

### Frost Wire Fence Company.

The Frost Wire Fence Company, Welland, Ontario, tendered a banquet to their employees on the 26th ult. The affair was thoroughly enjoyed and will hereafter be an annual fixture.

### Boston & Lockport Block Company's Catalogue.

**T**HE BOSTON & LOCKPORT BLOCK COMPANY, Boston, and Lockport, N. Y., with New York office at 33 South Street, issue a 1900 illustrated catalogue and price-list. In addition to the goods shown in their former catalogue are designs of Elliptical Yacht Blocks, Farrall's All Metal New Style Cargo Hoisting Block, Star Pattern Malleable Iron Blocks, Star Pattern Wire Rope Blocks and Improved Star Truck. The catalogue contains 112 pages and is bound in stiff cloth covers. It is a very complete and well arranged representation of the important line to which it relates.

### Want Books for 1900.

**M**ILLER, SLOSS & SCOTT, San Francisco, Cal., are supplying customers with a neat and convenient Want Book. It is about 3 x 4½ inches in size, with flexible leather covers. A calendar for 1900 in the front of the book is followed by the title page, after which is a department index and a picture of the firm's new building, now in course of construction, on the corner of Mission and Fremont streets. After some 50 blank pages designed for want memoranda, 10 or 12 pages are devoted to tables of weights and measures, rates of postage, 1901 calendar, &c.

Knapp & Spencer Company, Sioux City, Iowa, are sending out, with their compliments, a Want Book, with the injunction to hang the book up and remember their goods when ordering. The book is about 6 x 9 inches in size, printed on tinted paper, and contains in the neighborhood of 75 pages. A list of goods of which the company have a complete stock is given on the inside of the front cover, including 20 lines or more. At the head of each page is the company's name, under which is a two or three line reference to a special line of goods. The remainder of each page is left blank for making memoranda of wants.

### F. E. Myers & Bro.

**F. E. MYERS & BRO.** Ashland, Ohio, report that in addition to doing the largest business in their history they have made two notable improvements which will add greatly to their capacity for manufacturing and shipping the Myers Pumps, Hay Tools and Specialties, such as Store Ladders, Bicycle Stands, Merchandise Conveyors, &c. Early in the year they completed an addition to their foundry, 75 x 220 feet. This is equipped with the latest facilities for the rapid manufacture and handling of casting. A brass foundry is also run in connection with their foundry, thus enabling them to make all the castings used in their business. The need of increased storage capacity was seriously felt and they have just completed a four-story warehouse 50 x 250 feet. This building is connected with their factory by an iron bridge across Orange street. The completion of the A. & W. Railroad into Ashland gives them direct shipping connections with the Pennsylvania system, so that with the Erie and Pennsylvania at their service they are better prepared than ever before to take care of their large domestic and foreign trade and to fill all orders promptly.

### Maine Mfg. Company's Catalogue.

**T**HE MAINE MFG. COMPANY, Nashua, N. H., have issued their annual illustrated catalogue and price-list for the season of 1900 of their White Mountain Refrigerators and Ice Chests. Illustrations are given of the interior of the small factory where the business was founded in 1874, also a view of the present buildings used by the company, to which additions are being made. The circulating system employed by the company in their Refrigerators is explained, also the points of excellence claimed. Illustrations show the removable interior parts of the Refrigerators, as well as exterior and interior views of the entire line of goods. The company also manufacture Window Screen Frames, Children's Rockers, Flower Stands, Folding Lap Boards, &c., all of which are illustrated in the catalogue. The company state that their export business during 1899 showed a large increase over the year previous.

### Greene, Tweed & Co.'s Catalogues.

**G**REENE, TWEED & CO., 17 Murray street, New York, have just issued a series of catalogues pertaining to the several branches of their business. One is a catalogue of Mill Supplies of 379 pages, 11 x 8 inches, bound in cloth. This contains Tools and Supplies for manufacturers, mills, railroads, engineers, contractors and machinists, prices being quoted by salesmen and through the mail, owing to the frequent changes, instead of by discount sheet. Another illustrated catalogue contains Hardware and Mill Supply Specialties, being a condensation of the general catalogue, which is sent to all the trade with a discount sheet quoting best prices. Especial attention is called to Blake's Belt Studs, Smith's Fastener, Moran and Crescent Couplings, Lathrop's Awls, Empire Lace Cutters and Piston Packings. In this book are a number of other important specialties which they control as manufacturers, exclusive agents or importers. Another catalogue contains their Brass Specialties in the way of Hardware, from which a jobbing discount of 50 per cent. is made. A fourth book of 48 pages refers to the Improved Rochester Automatic Lubricators, which they own and control.

### F. W. Heitmann & Co.'s Catalogue.

**F**. W. HEITMANN & CO., Houston, Texas, have just issued what they refer to as the first large illustrated catalogue issued by a jobbing hardware house in Texas. It contains 434 pages, 10½ x 7½ inches, bound in cloth. It is confined strictly to the lines the house carry in stock, all of which they say are on hand for prompt shipment. They make a specialty of the Heavy Hardware, Machinery and Machinery Supply business, also full lines of Tools and some of the heavier articles dealt in in the Shelf Hardware business. This concern occupy two large warehouses, besides a regular storehouse, in the former of which is stored Machinery, Wrought Pipe, all kinds of Roofing, Poultry Netting, Nails, Wire and Wire Rope. The business established in the early days of Texas by F. W. Heitmann, who died in 1889, has since been continued by his only son, F. A. Heitmann, under the same firm style.

### Andrew B. Hendryx Company's Catalogue.

**T**HE ANDREW B. HENDRYX COMPANY, New Haven, Conn., issue a combined catalogue of Bird and Animal Cages, Cage Specialties, various kinds of Chain such as Curb, Safe, Ladder, Plumbers', Safety and Single and Double Chain, in bronze, brass, steel and iron. It also contains Wire Picture Cord made of bronze, brass and tinned wire, making a total of 175 pages. Bound with this is another catalogue of 115 pages, devoted exclusively to Fishing Reels. The book is handsomely printed and bound, the Bronze, Brass and other goods appearing in *fac-simile* colored inks, according to the material they are made of. An important line of goods is thus very attractively presented to the trade.

### Price-Lists, Circulars, &c.

**J. B. & J. M. CORNELL**, Twenty-sixth street and Eleventh avenue, New York: Pamphlet, illustrated catalogue of Metallic Fixtures for office and vault interiors. It represents devices only, as distinguished from their structural material, &c., and partially represents the class of work made by them of metal for public buildings and corporations, in the way of Files, Shelves, Cases, Boxes, Library Stacks, &c.

**POPE MFG. COMPANY**, Hartford, Conn., one of the constituent members of the American Bicycle Company: 1900 catalogue of Columbia and Hartford Bicycles. Models 65 and 66 are a pair of chainless wheels listed at \$75 each. Models 63 and 64 are chain wheels at \$50 each, and models 23 and 24 are the Hartford line, at \$35 each.

**THE PHILADELPHIA LAWN MOWER COMPANY**, Philadelphia, Pa.: Thirty-first annual illustrated catalogue of Lawn Mowers. A feature of the catalogue is that at the top of the pages is a half tone engraving of many well known places, some of them possessing historical interest, showing in each case their Mower on the lawn in the foreground. Another feature is the inducement to discount bills by a scale of discounts, commencing with 5 per cent. from bills paid February 1, 4 per cent. March 1, and so on to July 1, when it becomes net cash, after which date interest is charged.

**R. H. WOLFF & CO.**, 116th, 117th, 118th streets and Harlem River, New York: Illustrated catalogue of Wolff-American Bicycle for 1900. The various models are numbered 34 to 39 inclusive, together with their Duplex and two Tandems. Some of the features are spring tempered frames, eccentric chain adjustment, self oiling bearings, buttonholed hubs, interior brakes, and as options Morrow Automatic coaster and brake and gear cases.

**THE STANDARD TOOL COMPANY**, Cleveland, Ohio: Illustrated catalogue of 80 pages showing Twist Drills, Reamers, Chucks, Spring Cotters, Taps, Flat Spring and Riveted Keys, Milling Cutters, &c., together with a number of special Tools of this general character.

**CALDWELL MFG. COMPANY**, Rochester, N. Y.: Catalogue and price-list illustrating Hardware Specialties, including Caldwell Sash Balance, Car Window, Marine, Showcase, Wall Case and other Balances, Sash Locks, Door Stops and Holders, Door Springs and Checks, Physical Exercisers, Hose Reel, Garment Hangers.

**O. W. BULLOCK & CO.**, Springfield, Mass.: Illustrated catalogue, department 2, of improved Mechanics' Tools and Hardware Specialties, among which in variety are Drills, Engraving Tools, Gauges, Screw Drivers, Awls, Tracing Wheels, Pullers, Claws, Can Openers, Paper

Hangers' Tools, Tweezers, Vises, Saw Frames and Blades, &c.

THE BIGELOW & DOWSE COMPANY, Boston, Mass.: Booklet illustrating the Porter Screens for doors and windows.

UNION CARRIAGE COMPANY, St. Louis, Mo.: Illustrated Vehicle catalogue No. 4, showing a large assortment of Union Buggies, made in Grades A and B.

ASPINWALL MFG. COMPANY, Jackson, Mich.: Aspinwall Potato Machinery, Post Hole Diggers, Lawn Swings, Churns, &c.

PRENTISS VISE COMPANY, 44 Barclay street, New York: Illustrated catalogue No. 46, showing their full line, including several new patterns for different purposes. In it are listed the Prentiss Self Adjusting Jaw Vises and Vises for iron workers, filers, wood workers, watch makers, jewelers, coach makers, machinists, bicycle repair men, plumbers and steam fitters, together with a number of Specialties, Wrench Attachments, Drilling Attachments, Vise Clamps, Jewelers' Anvils, &c.

HELLER BROS. COMPANY, Newark, N. J.: 1900 catalogue of Horse Rasps, Files, Farriers' Tools, Machinists' Hammers and Clay Crucible Cast Steel. The price-list of Farriers' Tools and Machinists' Hammers was revised January 1, 1900.

NEW DEPARTURE BELL COMPANY, Bristol, Conn., John H. Graham & Co., 113 Chambers street, New York, selling agents: 40-page catalogue, envelope size, illustrating the New Departure Cycle Sundries, including Cyclometers, Bells, Coaster Hubs, Bicycle Controller, Pump, Trouser Guards, Acetylene and Oil Lamps and Automobile Bells. The catalogue is supplied in German and French as well as the English language.

### Calendars, Holiday Greetings, &c.

S TANLEY WORKS, New Britain, Conn., and 79 Chambers street, New York: A handsome calendar which artistically enforces the merits of their Ball Bearing Hinges.

PHILADELPHIA LAWN MOWER COMPANY, Philadelphia: Their 1900 calendar consists of 12 heavy cardboards, each of which is embellished with a view of local scenery.

KIRCKER & SON, Belleville, Ill.: Weekly calendar which calls attention to their business as a Hardware house established in 1848.

JOHN ROUIKE & SON, Savannah, Ga.: Calendar in which graceful reference is made to the fact that they are founders, machinists, blacksmiths, &c.

THE STANDARD TOOL COMPANY, Cleveland, Ohio: Calendar for 1900, illustrating Taps, Reamers, Drills, Cutters, &c.

SALEM FOUNDRY & MACHINE SHOP, Salem, Mass.: Monthly calendar with a fine illustration entitled "To the Rescue."

CLINTON IRON & STEEL COMPANY, Pittsburgh, Pa.: Handsome paneled calendar, illustrating "Red Raspberries," in color.

ROGERS, BROWN & CO., Pig Iron and Coke, New York: Calendar, with illuminated board.

OSCAR G. THOMAS, Taunton, Mass.: Illustrated hanger calendar, calling attention to Herald Ranges and Heaters.

KIRCKER & SON, dealers in Hardware, Belleville, Ill.: Illustrated hanger calendar.

OWEN HARDWARE COMPANY, Lexington, Va.: Calendar, illustrating the Natural Bridge, Virginia.

MATTHEW, ADDY & CO., dealers in Pig Iron, Cincinnati, Ohio: Calendar for 1900.

R. C. MCCLURE, Engineers' Supplies and Plumbing Goods, Syracuse, N. Y.: Calendar, with engraving entitled "An Inopportune Call."

ROBINSON & FOX, exporters, New York, Boston and Newfoundland: Large calendar with heavy face figures 1½ inches high.

THE S. OBERMAYER COMPANY, dealers in Foundry Supplies, Cincinnati, Ohio: Combined weekly pad calendar and order blank, 6 x 9 inches.

SOUTHERN LOG CART & SUPPLY COMPANY, dealers in Railway and Mill Supplies, Mobile, Ala.: 1900 calendar with an illuminated picture of "The Princess."

CALDWELL MFG. COMPANY, Rochester, N. Y.: A neat calendar for 1900, with thermometer.

F. E. MYERS & BRO., Ashland, Ohio: Hanger calendar, with numerous illustrations.

VAN VOORHIS & SANFORD, Monterey and Parrall, Mexico: Vest pocket memorandum book. This house carry a complete stock of Machinery Supplies, Builders' Hardware, &c., including a large line of American goods.

BRUCE & COOK, 190 Water street, New York: Calendar for 1900, their eighty-eighth year.

WESTERN ELECTRIC COMPANY, New York: Calendar giving a bird's-eye view of their factory.

CHARLES WARNER COMPANY, foreign and domestic Cements, &c., 66 Maiden lane, New York: Memorandum book with celluloid cover.

THOS. DAVIDSON MFG. COMPANY, Tinware, Wire Goods, &c., Montreal, Canada: Unique 1900 calendar and wire file for letters, &c.

WM. CABBLE EXCELSIOR WIRE MFG. COMPANY, 43 Fulton street, New York: Twenty-third annual calendar, with large and distinct figures.

L. BEST, selling agent for Sterling Emery and Corundum Wheels, &c., 45 Vesey street, New York: Desk calendar for 1900.

J. H. JOLLEY & CO., dealers in Metals, &c., Philadelphia: Calendar, with bronze stand.

THE BOEBINGER HARDWARE COMPANY, Cincinnati, Ohio: Twelfth annual calendar.

HERTZOG & HEILMAN, dealers in Hardware, Bicycles, &c., Reading, Pa.: A neat pictorial calendar.

STEVENSON, FIELD & CO., Pig Iron, &c., Columbus, Ohio: A handsome colored calendar.

### Trade Items.

H ELLER BROS. COMPANY, Newark, N. J., owing to the large demand for their lines of American Horse Rasps, Files, Farriers' Tools, &c., for both foreign and domestic orders have built an addition to their works, thoroughly equipping it with the latest improved machinery of their own construction. They are also about completing a new crucible melting furnace, which they expect to have ready by February 1, thus doubling their Steel making capacity. The increased facilities will enable them to ship goods more promptly in the future.

FREDERICK V. EARLE, who for the past 24 years has been associated with Richardson Bros. and the National Saw Company, Newark, N. J., has, since January 1, been identified with the house of C. E. Jennings & Co., manufacturers of Saws, Mechanics' Tools, &c., 101 Reade street, New York. Mr. Earle will give most of his attention to the firm's Saw trade.

THE KILBOURNE MFG. COMPANY, Fair Haven, Vt., have opened an office at 90 Chambers street, New York, which will be under the charge of C. E. Peabody. A full line of samples of their Wire Goods and Specialties for household and stationers' use will be shown. The company state that their goods and prices are made with a view of gaining and retaining trade.

THE PETERS CARTRIDGE COMPANY AND THE KING POWDER COMPANY of Cincinnati, Ohio, have removed their offices from the southwest corner of Third and Main streets to the southeast corner of Fifth and Main streets (Pickering Building), where they have secured the third floor, giving them a floor space of 2000 square feet entirely devoted to office purposes. The new offices are handsomely fitted up, and the company extend a cordial invitation to the trade when in the city to make them their headquarters.

DURING the coming year Henry M. Gay will continue to represent Wm. Frankfurth Hardware Company, Milwaukee, in his old territory, the State of Wisconsin and upper peninsula of Michigan.

IN our last issue in giving the chronology of the century old house now known as Dame, Stoddard & Co., Boston, several errors were made in the names of their predecessors. The business was established by Samuel Bradley in 1800, as noted, but his immediate successor was Martin L. Bradford, and not Bradley, as printed. Mr. Bradford was succeeded by Martin L. Bradford & Co. The other firm styles were correct, as given.

R. E. GOODRICH AND M. E. GOODRICH, sole proprietors, announce that they have sold the business of the Electric Oil Stove Company, Homer, Mich., to Lovell Smith, trus-

tee, who, with his associates, will continue to operate the factory at Homer. In order to expedite matters, however, the offices will be removed to Jackson, where there is excellent postal and telegraph service, to which point correspondence pertaining to future business should be addressed.

ROBERT J. MASBACH AND SAMUEL DALSIMER have formed a copartnership under the firm name of Masbach-Dalsimer Company, who have acquired and assumed all the assets and liabilities of the late firm of Robert J. Masbach. The business will be continued with additional space and increased facilities at 117 Chambers street, New York.

WILLIAM R. HOWELL, who has had many years of experience in the Hardware trade and ten years' practical experience in the factory of Fayette R. Plumb, Incorporated, Philadelphia, has been appointed representative of this firm, vice Edward F. Ross, who severed his connection with this house December 1 last.

THE C. J. KIMBALL COMPANY, successors to C. J. Kimball & Son, Bennington, N. H., are offering to the trade a large line of Shoe, Butcher and Kitchen Cutlery, also a line of Carpenters' Drawing Knives and Screw Drivers. An illustrated catalogue issued by this firm shows cuts of a large number of styles of each variety. On five pages are shown the different styles of Bread, Fish, Steak, Butcher, Boning, Skinning, Oyster, Cigar, Broom, Corn and Banana Knives. Three styles of Drawing Knives and two styles of Screw Drivers follow. The company, having some time ago bought the Shoe Knife business of Wilber Webster, formerly carried on at East Jaffrey, N. H., continue to manufacture his full line, which they illustrate in their catalogue. The C. J. Kimball Company were established in 1860 by C. J. Kimball, who was at their head until his death in 1897, when the management of the business was assumed by his two sons, who have been actively interested in the same for some years.

THE fire which took place a few days since in the plant of E. C. Atkins & Co., Indianapolis, Ind., was confined to their wood working department, and the production of their Saw factory proper was in no way interfered with, and their Handle department only temporarily interrupted. New machinery has already been installed, and the corporation are now running night and day with increased capacity, and having a large stock of raw material on hand they expect to be able to serve their trade more satisfactorily than heretofore.

J. F. BIGELOW, Worcester, Mass., manufacturer of the Bigelow Wire Fly Killer, has issued an attractive pamphlet referring to this article, which is well known to the Hardware trade. The pamphlet is fancifully illustrated and contains an original parody on "Will You Come Into My Parlor? Said the Spider to the Fly." We are advised that over 500,000 of these Fly Killers were sold last season. A convenient display frame is furnished for the Hardware trade, making an attractive summer line. The Wire Fly Killer, it is stated, kills but does not crush the fly, and will not scar or mar the most delicately tinted paper. Trade samples and prices are furnished on application.

### Among the Hardware Trade.

The store of A. H. Johnson & Co., Mayville, N. D., was lately damaged by fire. Their loss was partly covered by insurance, and a good deal of the stock was saved.

W. J. Moser, St. Joseph, Mo., has been succeeded by the Moser-Vogel Hardware Company, who are occupying a much larger establishment than heretofore.

Wolverton & Co. are successors to S. M. Blizzard, Derby, Iowa, dealer in Hardware, Farm Implements, Stoves, &c. They are intending soon to put in a line of Buggies and Wagons and Pumps.

Foster Furniture Company, Owosso, Mich., have purchased the Hardware business of Blackwood Bros., and removed the stock to a store opposite their Furniture emporium. The style of the firm has also been changed to Foster Bros.

W. E. Rasey and A. K. Stanbro have purchased the business of Fred. Bowen, Ellicottville, N. Y., and will continue under the style of Rasey & Stanbro.

The store of George Seybold & Co., Darlington, Ind., was damaged by fire on the 15th ult., to the extent of \$2500, the loss being fully covered by insurance. The firm are intending to put up a 32-foot addition to their establishment in the near future.

W. M. Orr has disposed of his stock of Hardware and Furniture at Henderson, Iowa, to J. S. Willard.

C. A. Becker is successor to Martz & Russell at Polk City, Iowa.

C. S. Shepherd, Middlesex, N. Y., whose store was destroyed by fire some months since, is now comfortably settled in a new building.

Evans, Dow & Co., have purchased the retail Hardware, Stove, Farm Implement and Sporting Goods business of William Stout, Rutland, Ill.

R. N. Myers, in the Hardware and Stove business at La Porte, Iowa, has admitted a partner, and the firm name is now Myers & Grettenberg. The store has been equipped with a number of new fixtures and a material addition to the stock has been made.

DeMuth & Bowyer, Cardington, Ohio, have dissolved, the former purchasing the latter's interest. Smith DeMuth will continue under his own name, and besides conducting a retail business in Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, &c., will also make a specialty of jobbing Bale Ties.

A. E. Reid, Scott, Ohio, has been succeeded by Reid Bros.

O. B. Holton and C. A. Gray have bought the business of D. B. Holton & Son, Braddyville, Iowa, and will continue under the style of Holton & Gray. Mr. Holton has managed the business since its establishment in March, 1891. Mr. Gray has been traveling for the McCormick Harvesting Machine Company for the past two years.

Roth & Richardson have just opened a Hardware, Stove, Farm Implement, Vehicle and Furniture store at Seymour, Iowa. They refer to their establishment as right up to date, and expect to carry a large stock. Other stores in which the firm are interested are those of Geo. Roth, Unionville, Mo., Roth & Richardson, Allerton, Iowa, Roth & Phillips, Bloomfield, Iowa, and Roth & Humbert, Pollock, Mo.

Skey & Snyder have lately opened up a Hardware, Agricultural Implement and Furniture store at Peck, Idaho.

Dean & Blackman, Wartrace, Tenn., have put a new and handsome front on their store.

H. Pfeiffer & Son are successors to J. C. Peters & Co., Fort Wayne, Ind.

E. W. Roderick of Cridersville, Ohio, has moved to Elida, where he has embarked in the Hardware, Tinware and Stove business.

The store of J. McAllister Hardware Company, Covington, Va., was robbed a short time since, and a \$50 plate glass window smashed.

Redlick Bros., Bakersfield, Cal., have appointed B. F. Lewis of Madera as assistant manager of the Hardware department of their general store. The firm have also lately added a large warehouse for the further extension of their Hardware department.

G. W. Coffey & Co. have succeeded to A. M. Wall's Hardware, Stove, Tinware, Farm Implement and Sporting Goods business at Nordin, O. T.

Baldwin Bros. Hardware Company, Lincoln, Neb., has sold out their business to Lincoln Hardware Company, who are continuing at the old stand.

### Miscellaneous Note.

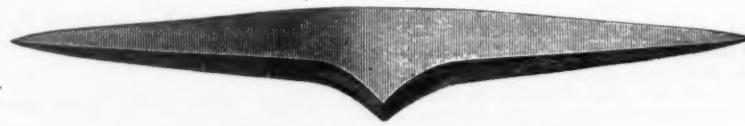
#### Detachable Letters and Figures.

Burdett & Johnson, 116 Broad street, Boston, issue a pamphlet describing self fastening detachable sign letters and figures, patented, which they are manufacturing. It is stated that these are made of metal, highly enameled in various colors. They have a raised or domed body combined with a self fastening device. This device consists of V-shaped prongs on the back which do not show when the letters are in use. They are readily attachable to and detachable from any kind of cardboard or other flexible material. For permanent signs the prongs can be clinched. They are referred to as particularly adapted for making show cards and price cards.

### Howard Coal Picks.

Jenkins Iron & Tool Company, Howard, Pa., are manufacturing the Howard coal picks, for both anthra-

thus, it is said, forming an exceptionally strong blade and shank. We are informed that the method of driving and securing the handle makes it especially firm and secure, obviating the trouble so often experienced with

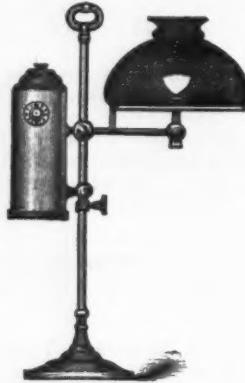


*Howard Picks for Coal.*

cite and bituminous coal, as here shown. It is made in 14 sizes—viz., 1½, 2, 2½, 2¾, 3 pounds, and then increasing by half pounds to 7 pounds weight. The manufacturers claim as a decided superiority the fact that the eye is set true in every pick, the process of making being patented. All picks are hand forged, with best crucible steel points welded in. Most of the favorite shapes are carried in stock, while special patterns can be made promptly.

### The Bundy Acetylene Gas Student Lamp.

The accompanying cut represents an acetylene gas student lamp put on the market by the Frank E. Bundy Lamp & Sundry Company, Elmira, N. Y., with New York office 7-9 Warren street. The material from which the gas is produced is calcium carbide, and is put up in



*The Bundy Acetylene Gas Student Lamp.*

cartridges called carborts, or it can be used with the ordinary ½-inch size carbide. It is explained that the advantage of using carborts is that when exhausted it can be thrown away and a new one introduced, and thus avoid disagreeable cleaning. The regular charge is ½ pound of carbide, which, it is explained, will give 30-candle power light and generate ½ foot of gas per hour, making a perfectly steady flame from 6 to 8 hours. The lamp is claimed to be absolutely non-explosive and free from odor.

### Jenkins' Hoe.

Jenkins Iron & Tool Company, Howard, Pa., are manufacturing the Jenkins Hoe, here illustrated. The



*Jenkins' Hoe with Improved Neck.*

hoe is made from a solid piece of steel, the goose-neck shank being bent around, as seen in the illustration,

hoes where the head becomes loose or rattles around in the handle.

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**Rome Automatic Bicycle Pump.**

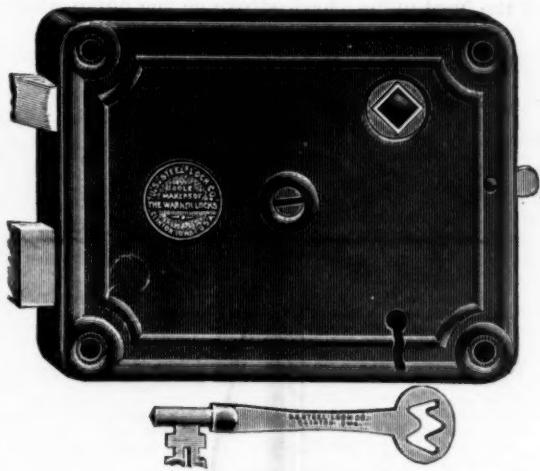
Rome Mfg. Company, Rome, N. Y., are making the Rome Automatic bicycle pump, shown herewith. The cylinder is nickel plated brass and can be connected directly to the tire valve stem without the use of intermediate rubber hose. The spring between the outer and inner tube forms an adjustment between the end of pump and valve stem for any condition of tire or stem,

*Rome Automatic Bicycle Pump.*

giving a direct connection from pump to tire. The pressure on the valve stem is relieved as the tire fills by the spring adjustment, and the slight angle at which the pump is attached to the stirrup permits the hand to clear the wheel in pumping. The pump proper passes through a short piece of tubing slightly larger than the pump barrel, and to this piece of tubing the stirrup is attached.

**Steel Horizontal Rim Lock.**

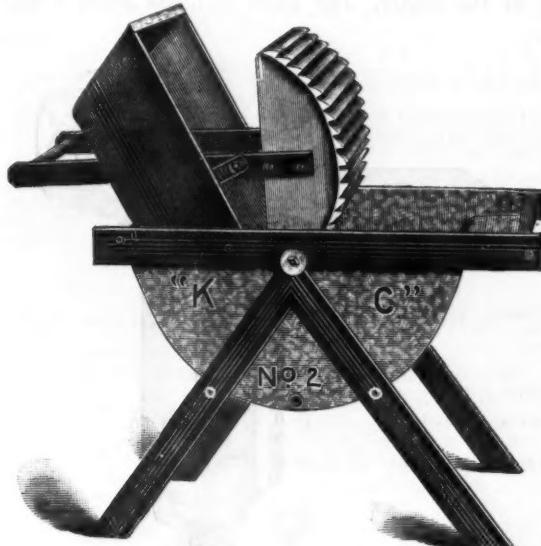
United States Steel Lock Company, Clinton, Iowa, have put on the market the horizontal rim lock No. 1155, here illustrated. It is made from drawn steel, with brass bolts and ivory black finish. A marked difference as compared with many horizontal locks is that the key comes directly under the knob, and if the middle rail is wide enough a combined escutcheon may be used. The

*Horizontal Rim Lock with Steel Key.*

latch bolt is constructed on their simple reversing plan, as in No. 1105 lock. The hub is of a composite character, consisting of three parts of steel, riveted together with a hollow square brass rivet, holding the three parts together, which they refer to as a new feature. The levers or cams of the hub are centrally located, so that it may be placed in the lock either side up. The small brass medallion attached to the cover of the lock is an innovation. For exportation, this lock is also made with a double throw for the bolt. The company expect that a large foreign trade in this lock will be developed. Indeed, it was largely with this end in view that the lock was originated.

**Kansas City Washer.**

Rath Mfg. Company, Kansas City, Mo., are producing the K. C. Washer No. 2, as illustrated herewith. It is a covered machine having a 9-inch compression coiled spring incased in retinned spring carriers on either side of the machine. An essential feature of the machine is a galvanized iron corrugated bottom, having

*Kansas City Washing Machine with Galvanized Iron Bottom.*

corrugations throughout the semicircular bottom. The corrugations have  $\frac{1}{8}$ -inch centers, about  $\frac{1}{2}$  inch high. The bottom, sides, &c., are said to be made of the best Apollo galvanized iron, and the point is made by the company that there are no cracks or crevices to accumulate dirt and filth.

**Neuss Self Sharpening H Stud.**

Leonhardt & Co., Schöneberg, Berlin, Germany, are manufacturing the Neuss patent horseshoe H studs, as shown herewith. This screw stud is made in four sizes, Nos. 4, 6, 8 and 10, increasing in size with the number, adapted variously for ponies, riding horses, carriage horses and cart horses. The same device is made in sizes 1, 2, 3, 4 and 5 (No. 1 the smallest), to drive in instead of being screwed in, and known in the trade as Plug Studs. The studs are designed to assist the animal to a good foothold on slippery roads not only rendered dangerous by frost, but also at all seasons on the modern asphalt, wood, brick and other pavements now com-

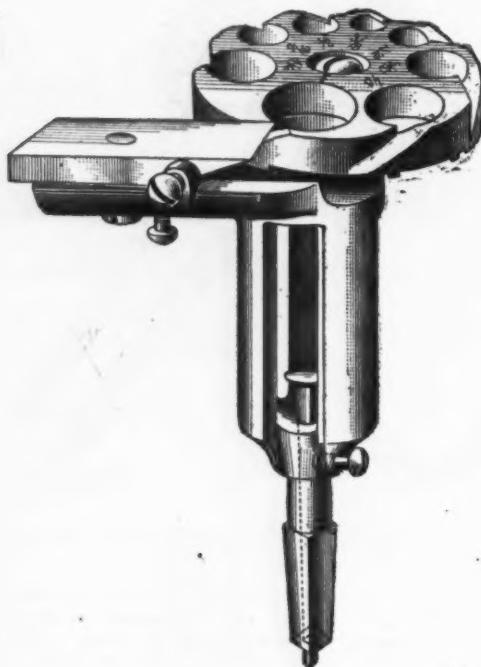
*Neuss Self Sharpening H Horseshoe Stud.*

mon in cities. It will be seen there are six inside sharp edges, which remain sharp to the end, preventing the animal from slipping as long as they project from the shoe, four studs constituting a set, two each front and rear. The manufacturers also supply the few simple tools needed for inserting or removing the studs, through the agency of the owner or groom, instead of a farrier, if so desired. One is a screw key with two prongs at right angles with the body of it; another is a screw tap, and a third is a thread cleaner, being in the nature of a short tap with a T handle.

With the beginning of the new year the old established Hardware business of Geo. M. Steinman & Co., Lancaster, Pa., was reorganized under the name of the Steinman Hardware Company. This stand has been in the Steinman name since 1760, a period of 140 years. George Steinman, surviving partner of the old firm, will be connected with the new company, but will not participate actively in the management of the business. Henry S. Franklin, who has long been the buyer for the old firm, will be the manager, and will have associated with him as directors of the company Walter M. Franklin, Hugh M. North, J. W. B. Bausman and Harry E. Hershey.

**Bonney Hollow Auger.**

The accompanying engraving shows the improved hollow auger which the Bonney Vise & Tool Works, 3015 Chestnut street, Philadelphia, are placing on the market. It is said to cut freer, faster and cleaner than the old style auger, and may be changed from one size to another almost instantly. There is no projection above the knife, therefore the tool may be used to cut any size of work, and offset tenants may be cut with it as readily as those cut in the center. The knife is made extra heavy to

*Bonney Hollow Auger.*

prevent any possibility of its springing; and the body is a steel casting, which precludes liability to breakage. The shanks are made small to fit any size of bit brace. The plate is made thick, forming a better guide for the tenant, and enabling an operator to turn a tenant truer. The stop is of improved design, to allow of more accurate adjustment, and enable the auger to turn a larger tenant. The improvements in the tool have been patented by the makers.

**Steel Sash Pulley and Triple Bit.**

Grand Rapids Hardware Company, Grand Rapids, Mich., are manufacturing the No. 2 all steel sash pulley and Grand Rapids triple bit, illustrated herewith. Fig.

*Fig. 1.—All Steel Sash Pulley.*

1 represents an all steel noiseless sash pulley, which requires in its installation neither screws nor nails. The pulleys are uniform in size, and the face plates are not let into the wood. The shell is so formed that the sash cord will not get off the wheel. When fitting this pulley to a frame three 1-inch holes are bored in line, with centers  $\frac{1}{4}$  inch apart. The pulley is fastened into the frame by punching the end tongues, seen in the illustration, into the wood with a common nail set, the company

supplying a punch free for this purpose, although any common nail set is sufficient. Fig. 2 illustrates the Grand Rapids triple bit, for use in any common power boring

*Fig. 2.—Grand Rapids Triple Bit.*

machine for simultaneously boring the three holes at one operation instead of three, as with the ordinary bit.

**The Haas Bicycle Foot Pump Valve.**

The valve shown in Fig. 1 is used in the bicycle foot pump illustrated in Fig. 2, offered by Henry Haas &

*Fig. 1.—Haas Bicycle Foot Pump Valve.*

Son, 551-553 West Thirty-fifth street, New York. The valve is referred to by the manufacturers as doing away with the hard pulling back stroke on the pump when the

*Fig. 2.—Haas Bicycle Foot Pump.*

hose is attached to the tire. The ball check operates automatically, it is explained, and makes pumping easy. The valve is principally used in pumps where the tube cylinder is 18 inches and longer, and is especially intended for vehicle and automobile tire use.

# Current Hardware Prices.

REVISED JANUARY 9, 1900.

**General Goods.**—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail merchants. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

**Special Goods.**—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

**Adjusters Blind**—  
Domestic,  $\frac{1}{2}$  doz. \$3.00....\$34@33% $\frac{1}{2}$  & 10%  
North's.....10%  
Zimmerman's—See Fasteners, Blind.

**Window Stop**—  
Ives' Patent.....25&5%  
Tiplin's Perfection.....50%

**Ammunition**—See Caps, Cartridges, Shells, &c.

**Anvils—American**—  
Eagle Anvils.....# 7M@7M  
Hay-Budden, Wrought.....14@94%  
Horseshoe brand, Wrought.....14@94%  
Samson.....# D 7M@94%  
Trenton, Wrought.....# 8M@8M

**Imported**—

Armitage's Mouse Hole.....\$4@94%  
Peter Wright's.....# 8M@94%

**Anvil, Vise and Drill**—  
Millers Falls Co., \$18.00.....30%

**Apple Parers**—See Parers, Apple, &c.

**Augers and Bits**—  
Common Double Spur.80d@10d@70%  
Boring Machine Augers.....80d@10d@70%

Car Bits, 12-in. twist 60d@10@80d@10%  
Jennings' Pattern:

Auger Bits.....60d@80d@10%

Ford's Auger and Car Bits.....40@10d@40d@10%

Forstner Pat. Auger Bits.....25%

C. E. Jennings & Co.:  
No. 10 ext. lip. R. Jennings' list.....40@40d@10%

No. 30, R. Jennings' List. ....50d@10d@80%

Russell Jennings'.....25d@10d@24%

L'Hommedieu Car Bits 15&10@15&10d@10%

Pugh's Black.....20%

Snell's Jennings' Pattern.....35%

Snell's Bell Hangers' Bits.....50%

Snell's Car Bits, 12-in. twist.....60%

Wright's Jennings Bits (R. Jennings' list).....50%

**Bit Stock Drills**—

Standard List .....65d@10d@70%

**Expansive Bits**—

Clark's small, \$18; large, \$28.....50d@10%

Lavigne's Clark's Pattern, No. 1, # doz. \$26; No. 2, \$18....50d@10%

Steer's No. 1, \$26; No. 2, \$18....40@40d@5%

Swan's.....60%

**Gimlet Bits**—

Common Double Cut. gro. \$2.75@3.25

German Pattern.....gro. \$5.00@5.50

Double Cut, makers' lists.....50d@50d@10%

**Hollow Augers**—

Ames.....25d@10%

Bonney's Adjustable, # doz. \$16.00

New Patent.....25d@10%

Universal.....20%

**Ship Augers and Bits**—

Ford's.....40@10d@40d@10%

Snell's.....40%

L'Hommedieu's.....15d@10d@15d@10%

Watrous'.....40@40d@5%

**Awl Harts**, See Harts, Awl.

**Awls**—

Brad Awls:  
Handled.....gro. \$3.75@3.10

Unhandled, Shouldered gro. 65@80%

Unhandled, Patent....gro. 65@70%

Peg Awls:  
Unhandled, Patent....gro. 51@34c

Unhandled, Shouldered.gro. 65@70c

Scratch Awls:  
Handled, Common....gro. \$3.50@4.00

Handled, Socket....gro. \$11.50@12.00

**Awl and Tool Sets**—See Sets, Awl and Tool.

**Axes**—

First Quality, best brands, \$6.00@6.25

First Quality, other brands \$5.50@5.75

Jobbers' Special Brands:

Good Quality.....\$5.25@5.50

Best Quality.....\$6.00@6.50

Cheap, Handled Axes.....\$4.75@5.00

Beveled, add 25c doz.

**Axle Grease**—See Grease, Axle.

**Axes**—

Concord, loose collar.....6 $\frac{1}{4}$  c 6 c  
Concord, solid collar.....6 $\frac{1}{4}$  c 6 $\frac{1}{4}$  c  
No. 1 Common.....5 c 4 $\frac{1}{2}$  c  
No. 2, Solid Collar.....5 $\frac{1}{4}$  c 5 $\frac{1}{4}$  c  
Nos. 7, 8, 11 to 14.....50d@10%  
Nos. 7, 8, 11 to 14, 100 sets.....60%  
Nos. 15 to 18.....50%  
Nos. 19 to 22.....60d@10%

**Boxes, Axle**—  
Common and Concord, not turned.....lb. 5c  
Common and Concord, turned.....lb. 5c  
Half Patent.....lb. 9c

**Balances**—

**Sash**—  
Caldwell new list.....50c  
Pullman's .....62 $\frac{1}{2}$  c

**Spring**—

Spring Balances.....50@50d@5%  
Chatillon's Light Sprg. Balances..40@10%  
Chatillon Straight Balances.....40%  
Chatillon Circular Balances.....50%  
Chatillon's Large Dial.....30%

**Barb Wire**—See Wire, Barb.

**Bars—Crow**—  
Steel Crowbars, 10 to 40 lb., per lb. 4@4 $\frac{1}{2}$ c

**Beams, Scale**—  
Scale Beams, List Jan. 12, '98.....30@30d@5%

Chattillon's No. 1.....30%

Chattillon's No. 2.....40%

**Beaters—Egg**—  
Standard Co.:

No. 5 Steel Handle Dover. ....gro. \$0.50  
No. 10 Cast Handle Dover. ....gro. \$0.00  
No. 10 Stel Handle Dover. ....gro. \$0.00  
No. 15 Extra Heavy Steel Handle. ....gro. \$1.00

Rival, # gro. ....\$1.00

Taplin Mfg. Co.: ....# gro.

No. 50 Small Family size.....50c

No. 100 Regular Family size.....50c

No. 192 Regular Family size, tinned.....50c

No. 150 Large Family size.....\$1.00

No. 152 Large Family size, tinned.....\$1.75

Lyon's, Standard size. ....# doz. \$1.75

Wonders (S. S. & Co.)....# gro. \$7.50

**Belows**—

**Blacksmith**—  
Standard List .....70@70d@5%

Inch... 50 33 34 36 38 40

Each. \$4.25 4.50 5.25 5.75 6.50 7.75

Extra Length:

Each. \$4.75 5.25 5.75 6.50 7.40 8.75

**Molders**—

Inch... 9 10 11 12 14 16

Doz. \$6.75 7.25 8.50 9.50 12.00 14.50

**Hand**—

Inch... 6 7 8 9 10 12

Doz. \$3.75 4.25 4.50 5.00 5.75 6.75

**Bells—Cow**—  
Ordinary goods.....75d@10%

High grade.....70@70d@10%

Jersey.....75@75d@10%

Texas Star.....50d@10%

**Door**—

Gong, Yankee.....55c

House, R. & E. Mfg. Co.'s.....50d@10%

Levers and Pull, Sargent's. ....50d@10%

**Hand**—

Hand Bells, Polished.....65@65d@10%

White Metal.....65@65d@10%

Nickel Plated.....50@50d@10%

Swiss.....60@60d@10%

**Miscellaneous**—

Farm Bells.....lb. 2@2 $\frac{1}{2}$ c

Steel Alloy Church and School....50d@10d@10%

Wilmot & Hobbs Mfg. Co., Gongs....70%

**Belt**ing—

Rubber—Common Standard.....70d@10d@75%

American Screw Company.....60d@10d@70%

Extra.....60d@80d@10d@10%

High Grade.....60d@80d@10d@10%

**Leather**—

Extra Heavy, Short Lap.....50d@10d@10d@10%

Regular Short Lap.....60d@80d@10d@10%

Standard.....60d@10d@80d@10d@5%

Light Standard.....70%

**Cut Prices.**—In the present condition of the market, while many advanced prices are announced by the manufacturers, lower prices are often made by the wholesale trade who have stocks on hand purchased at former quotations.

**Names of Manufacturers.**—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 6, 1899), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

**Standard Lists.**—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

**Additions and Corrections.**—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

**Cotton**—  
Rossendale-Reiddaway B. & H. Co.:  
Sphinx Brand.....60d@10%

Durable Brand.....70%

**Bench Stops**—See Stops, Bench

**Benders and Upsetters**, Tire—  
Green River Tire Benders and Upsetters.....20%

Ill. Iron & Bolt Co.....40@40d@5%

Stoddard's Lightning Tire Upsetters.....40@50%

**Boxes, Axle**—

Lane's Cycle Hanger.....33 $\frac{1}{2}$  c 5%

John S. Long's Son's 1899 list:

Chain.....50%

Parts.....50%

Spokes.....50%

Tubes.....60%

**Bicycles**—

Lane's Cycle Hanger.....33 $\frac{1}{2}$  c 5%

John S. Long's Son's 1899 list:

Chain.....50%

Parts.....50%

Spokes.....50%

Tubes.....60%

**Bits**—

Eddy, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

**Bit Holders**—See Holders.

**Blind Adjusters**—See Adjusters, Blind.

**Blind Fasteners**—See Fasteners, Blind.

**Blind Staples**—See Staples, Blind.

**Blocks—Tackle**—

Common Wooden.....70@70d@10%

Eddy's Steel.....60d@10%

Hartz Steel.....50d@10%

Ford's Star Brand Self Lubricating.....60d@10%

Hollow Steel, Ford's Pat. Star Brand.....50d@10%

Lane's Patent Automatic Lock and Junior.....30%

Stowell's Novelty, Mal. Iron.....50%

See also Machines, Hoisting.

**Boards, Stove**—

1899 List:

Zinc.....50%

Crystal and Embossed.....40%

**Bolts**—

**Carriage, Machine, &c.**—

Common, list Jan. 30, '95, 4.5c@5%@10%

Norway Iron, \$3.00, list Oct. 7, '84, 7.5c@10%

Phil. Eagle, \$3.00 list, 7.5c@10%

Bolt Ends, list Jan. 30, '95, 5c@5%@10%

Machine, list Oct. 1, '99, 5c@5%@10%

Note.—Jobbers' prices on Bolts are now generally lower than manufacturers'.

**Door and Shutter**—

Cast Iron Barrel, Round Brass Knob:

Inch.....5 4 5 6 8 8

Per doz. \$0.33 .36 .45 .57 .80

Cast Iron Spring Foot:

Inch.....6 8 10

Per doz. \$1.00 1.25 1.75

Cast Iron Chain, Flat, Japanned:

Inch.....6 8 10

Per doz. \$0.35 .50 1.20 1.50

Cast Iron Shutter, Brass Knobs:

Inch.....6 8 10

Per doz. \$0.60 .80 .90 1.15

Wrought Barrel Brass Knob:

Inch.....3 4 5 6 8 8

Per doz. \$0.44 .50 .80 1.20 1.28

Wrought Barrel.....70d@10%&5%

Wrought Flush, B. ....50d@10%&5%

Wrought Shutter.....40d@10%&5%

Wrought Square Neck.....50d@10%&5%





**Lemon Squeezers—**See *Squeezers, Lemon.***Lifters, Transom—**

Dickson:	
3 x 4 ft. x 1/4.....	\$100 \$11.00
Other sizes Iron.....	70&10%
Other sizes, Brass and Bronze.....	70%
Excelsior.....	60@60&10%
Payson's:	
Solid Grip Nos. 648 and 644, P 100.....	\$11.00
Bronzed Iron.....	70%

**Lines—**

Wire Clothes, Nos., 18 19 20	
100 feet.....	\$3.50 \$3.75 \$2.25
75 feet.....	\$1.75
Crownaway Mills:	
Crown Solid Braided Chalk.....	.33¢ 35¢
Mason's, No. 0 to No. 5.....	.33¢ 35¢
Silver Lake Braided Chalk, No. 0, \$6.00;	
No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50	
P 100.....	.30¢

**Locks, &c.— Cabinet—**

Cabinet Locks.....	55¢@55¢ 6¢ 7½¢
Door Locks, Latches, &c.—	

[Net prices are very often made on these goods.]

Reading Hardware Co.....	40%
R. & E. Mfg. Co.....	42¢ 6%
Sargent & Co.....	40@40&10%
Staymaker-Barry Co.....	30¢@35%

Snow's Victor.....	50&10%
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**Elevator—**

Stowell's.....	33¢ 45¢
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**Padocks—**

Wrought Iron, list Dec. 3, '97.....	70@70d 10%
Dog Collar, S. B. Co.....	40%

R. & E. Mfg. Co. Wrt. Steel a d Brass.....	50%
S. B. & Co.....	40%

**Sash, &c.—**

Fitch's Bronz and Brass.....	66¢ 50¢
Fitch's Iron.....	70%
Ives' Patent.....	62½% 10@66¢@10%
Payson's Perfect.....	70%
Payson's Signal (new list).....	75%
Reading.....	60&10@10@70%

**Machines—****Boring—**

Without Augera.

Upright. Angular.

Improved No. 3...\$4.25	No. 1 \$5.00
No. 4...8.75	No. 2 3.38
Improved No. 5...2.75	
Jennings'.....	2.50
Millers' Falls.....	4.75
Snell's, Rice's Pat. ....	2.50 2.75
Swan's, No. 500...5.10	No. 200 6.45

**Holsting—**

Moore's Anti-Friction Differential Pulley Block.....	30%
Moore's Hand Hoist, with Lock Brake.....	30%

**Washing—**

Wayne American, P doz. \$27.00	
Western Star, No. 2, P doz. \$28.00	
Western Star, No. 3, P doz. \$30.00	
St. Louis, No. 4, P doz. \$60.00	
Total 10¢ off, freighted.	

**Mallets—**

Hickory.....	45¢@50¢@5%
Lignumvitae.....	45¢@50¢@5%
Tinners', Hickory and Applewood, doz.....	50@55¢
Fiber Head Stearns'.....	30@10%

**Mats—****Door—**

Elastic Steel (W. G. Co.).....	10¢
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**Mattocks—**

List Feb. 23, 1899.....	65@65&10%
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**Meat Cutters—**See *Cutters, Meat.***Milk Cans—See Cans, Milk.****Mills— Coffee—**

Box and Side, list Jan. 1, '88.....	60¢@50¢@10d@5%
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Net prices are often made on some goods which are lower than above discounts.

Enterprise Mfg. Co., list Jan. 17, '93.....	30%
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National, list Jan. 1, '94.....	30%
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Parker's Columbia and Victor.....	50&10%
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Parker's Upright.....	30&10@40%
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Swift, Lane Bros.....	30%
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**Mincing Knives—**See *Knives, Mincing.***Molasses Gates—**See *Gates, Molasses.***Money Drawers—**See *Drawers, Money.***Mowers, Lawn—**

Net prices are generally quoted.

10 12 14 16-inch	
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Cheap.....	\$1.75@2.00
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Good.....	5.00 5.25 5.50 5.75
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High Grade 4 00	4.25
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4.50	4.75
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Pennsylvania and Continental	60@10@25%
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Quaker City.....	70@25%
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Great American.....	70@25%
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**Philadelphia:**

Styles M., S., C., K., T.....	70@10%
Style A, all Steel.....	60@10%
Style E, Low Wheel.....	60@10%
Style E, High Wheel.....	70@10%
Drexel and Gold Coin, low list.....	50%

**Nails—**

Cut and Wire. See Trade Report.	
Wire Nails and Brads, Papered.	
List July 20, 1899.....	50@80d@10%
Hungarian, Finishing, Upholsterers, &c. See Tacks.	

**Horse—**

Nos. 6 7 8 9 10	
A. C.....	25¢ 23¢ 23¢ 21¢ 21¢
	40&55
Capewell.....	19¢ 18¢ 17¢ 16¢ 16¢
C. B. K.....	25¢ 23¢ 23¢ 21¢ 21¢
Champlain.....	28¢ 26¢ 25¢ 24¢ 23¢
Maud S.....	25¢ 23¢ 23¢ 21¢ 21¢
Neponset.....	23¢ 21¢ 20¢ 19¢ 18¢
Putnam.....	23¢ 21¢ 20¢ 19¢ 18¢
Standard.....	23¢ 21¢ 20¢ 19¢ 18¢
Star.....	23¢ 21¢ 20¢ 19¢ 18¢
Vulcan.....	23¢ 21¢ 20¢ 19¢ 18¢
	25@10%

**Picture—**

1 1/2 2 2 1/2 3 3 1/2 in.	
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Brass Head.....	.45 .50 .55 .60 .65
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Por. Head.....	1.10 1.10 1.10 ... gro.
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**Nippers, See Pliers and Nippers.****Nuts—**

List Feb. 1, '99.

Cold Punched.

Off list.

Note.—Tapped Nuts are now 2-10¢ higher than above.

**Oakum—****Oil Tanks—See Tanks, Oil.****Oilers—****Brass and Copper—****Tin or Steel—****Zinc—****Malleable, Hammers' Improved, No. 1,****23¢ 25¢ 26¢ 27¢ 28¢****Malleable, Hammers' Old Pattern,****same list.....****Wilmot & Hobbs Mfg. Co.....****20¢@10¢@10%****Wicks and Fins—****20¢@1**



**Shovels and Tongs—**

Brass Head.....	60¢@80¢ 10%
Irot. Head.....	60¢@80¢ 10%
<b>Sieves and Sifters—</b>	
Hunter's Imitation, gro.	\$1.10@12.00
Buffalo Metallic Blued, S. S. & Co., 9 gr.: 16x16 16x18 18x30 \$12.90 \$13.80 \$15.00	
Eclipse.....	gr. \$10.00
Electric Light.....	gr. \$12.00
Hunter's Genuine.....	gr. \$12.50
Shaker (Barter's Pat.) Flour Sifters: doz. \$3.00	35¢

**Sieves, Wooden Rim—**

Mesh 18, Nested, doz.....	\$0.75@0.80
Mesh 20, Nested, doz.....	.85@.90
Mesh 2½, Nested, doz.....	1.00@1.05

**Sinks—****Cast Iron—**

Low list.....	60@65%
Note.—The low list is now generally used, but some jobbers use high list.	

**Wrought Steel—**

Columbus Galv'd and Enamelled.....	60@5%
Columbus, Painted.....	45%
L. & G. ....	50%

**Skeins, Wagon—**

Cast Iron.....	70@70¢ 10%
Malleable Iron.....	60¢ 10@50%
Steel.....	35@35&5%
I. L. & B. Co. Steel.....	35%

**States—**

"D" Slates.....	50¢ 10@50¢ 10¢ 10%
Unexcelled Noiseless States: 80¢ 60¢ tens@60¢ 6 tens@5%	
Wire Bound.....	40¢ 10@50%
Double Slates, add \$1 case, net.	

**Slaw Cutters—See Cutters.****Snaps, Harness—**

German.....	40@40¢ 10%
Covert Mfg. Co.:	
Derby.....	35@2%
High Grade.....	45@2%
Jockey.....	40@2%
Trojan.....	45@2%

**Covert's Saddlery Works :**

Banner.....	80@10%
Crown.....	60@10%
Triumph.....	60@10%

**W. & E. T. Fitch Co.:**

Bristol.....	40@10%
Empire.....	50@5%
German.....	40%
National.....	50@5%
Perfect.....	45%
Clipper.....	50@5%
Champion.....	40%
Security.....	40%
Victor.....	80@5%

**O. elia's "Imperial" W.**

Sold Steel.....	65@65@10%
Sold Swivel.....	*5@10@65@10@10%
Sargent's Patent Guarded.....	60@60@65@10@10%

**Snaths—**

Scythe.....	45@5%
<b>Snips, Tinner's—See Shears.</b>	

**Soldering Irons—**

See Irons, Soldering.	
<b>Spoke Trimmers—</b>	

**See Trimmers, Spoke.****Spoons and Forks—**

Silver Plated—	
Flat Ware.....	50¢ 10@60¢ 10%
Wm. Rogers Mfg. Co. ....	50@10%

**Miscellaneous—**

German Silver.....	60¢ 10%
Wm. Rogers Mfg. Co.:	
15% German Silver.....	60%
Rogers' Silver Metal.....	50@10%

**Springs—**

Door—	
Gem (Coll.).....	20%
Star (Coll.).....	30%
Torrey's Rod, 39 in....	doz. \$1.10@1.25
Warren's No. 1, 9 in. ....	\$1.50; No. 2, \$3.40.....
Swotor (Coll.).....	60@10@60@10@5%

**Carriage, Wagon, &c.**

1½ in. and wider...Bk. Hf. Brt. Brt. Tested and Temp. 5½ 5¾ 6 lb	
Oil Tested and Tempered.....	6½ 6¾ 7 lb
Clift's Bolster Springs.....	35%
Clift's Seat Springs.....	55@ pair 55¢

**Sprinklers, Lawn—**

Enterprise.....	25@30%
Philadelphia No. 1, 9 in. ....	\$1.12; No. 2, \$1.50; No. 3, 30¢

**Squares—**

Nickel plated....	1 List May 1, '95.
Steel and Iron....	70@70¢ 5@10%
Rosewood Hdl. Try Square and T-Bevels.....	60@10@10@70%
Iron Hdl. Try Squares and T-Bevels.....	40@10@40@10@10%
Dission's Try Sq. and T-Bevels.....	60@10@10@10@10%
Winterbottom's Try and Miter....	50@10%

**Squeezers—**

Lemon—	
Wood, Common, gro., No. 0. ....	\$5.00;
No. 1, \$5.75@6.00; No. 2, \$10.00.	
Wood, Porcelain Lined:	
Cheap.....	doz. \$2.00@2.75
Good Grade.....	doz. \$3.00@3.50

**Tinned Iron—****Iron, Porcelain Lined****doz. \$3.90@4.25****Jennings' Star.....****doz. \$1.85@1.90****Klug.....****doz. \$2.00****Staples—****Barbed Blind.....****lb. 9@10c****Electricians', Association list.****75@10c****Fence Staples, same price as Barbed****Wire. See Trade Report.****Poultry Netting.....****80@10c****Grand Crossing Tack Co.'s list.****75@10c****Steels, Butchers'—****Dick's.....****40%****Foster Bros'.....****30%****C. A. Hoffmann's.....****40%****Nichols Bros.....****50%****Steelyards—****25@25@10c****Stocks and Dies—****Blacksmiths'.....****.10¢****Gardner.....****.50¢****G. een River.....****.25¢****Lightning Screw Plate.....****.25¢****Light Giant.....****.25¢****Reece's New Fore Plates.....****.25¢****Curtis Reversible Ratchet Die Stock.....****.25¢****Stone—****Scythe Stones—****Pike Mfg. Co., list '95-'96.....****.33@.35¢****Cleveland Stone Co., list Nov. '92.****.33@.35¢****Oil Stones, &c.—****Atkins' new list.....****.40¢****Simonds' Improved.....****.33@.35¢****Simons' Crescent.....****.25¢****Ship—****L. & J. White.....****.20@.25¢****Saw—****Atkins' new list.....****.40¢****Simonds' Improved.....****.33@.35¢****Ship—****L. & J. White.....****.25¢****Transom Lifters—****\* See Lifters, Transom.****Traps—****Game—****Oneida Pattern.....****.70@10¢****Newhouse.....****.45@.50¢****Hawley & Norton.....****.65@.70¢****Victor (Oneida Pattern).....****.75@.80¢****Star (Blake Pattern).....****.65@.70¢****Mouse and Rat—****Mouse, Wood, Choker, doz. holes.9@10c****Mouse, Round or Square Wire.....**

Washers— Leather, Axle—	Axe Finish.....lb. 4½@4½c	Copper, list Feb. 26, '96.....15%	Bemis & Call's: Adjustable S.....35&55
Solid.....80¢@10¢@10¢@85%	Cast Steel Wire.....50¢	Adjustable S Pipe.....40¢	
Patent.....85¢@85¢@5%	Stubs' Steel Wire.....\$6.00 to \$2, 40%	Brigg's Pattern.....30¢@10%	
Coil: $\frac{1}{4}$ 1 $\frac{1}{2}$ $\frac{3}{4}$ Inch. 12c 14c 16c per 100	Wire Clothes Line, see Lines.	Combination Black.....40¢@10%	
Iron or Steel—	Wire Picture Cord, see Cord.	Combination Bright.....40¢@5%	
Size bolt....5-16 $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ Washers....\$6.20 5.50 4.00 3.50 3.00 In lots less than one kg add 1¢ per lb., 5-lb. boxes add ½¢ to list. NOTE—Jobbers' prices generally lower than manufacturers'.	NOTE.—There is a wide difference in prices East and West, and some foundries are naming considerably higher prices than the above.	Cylinder or Gas Pipe.....55¢	
Washer Cutters— See Cutters, Washer.	22.00@.....	Extra Heavy.....45¢	
Washing Machines— See Machines, Washing.		Merrick's Pattern.....50¢	
Water Coolers— See Coolers, Water.		No. 3 Pipe, Bright.....55¢	
Weaners—		Bindley Automatic.....30¢	
Tyler's New Hafer—No. 1 ½ doz. \$3.45; No. 2, \$3.70; No. 3, \$4.00; No. 4, \$4.30 Tyler's Steel—Nos. 1 and 2, ½ doz. \$1.70; No. 3, \$2.00; No. 4, \$2.30.		Boardman's.....38¢	
Wedges—		Bull Dog, W. & B.....60¢@10¢@10%	
Oil Finish.....lb. 4@4½c		Donohue's Engineer.....40¢@10¢@10%	
		Eagle.....50¢@10¢@10%	
		Hercules.....70¢	
		Solid Handles, P. S. & W.....50¢	
		Stevenson.....60¢@10¢@10%	
		Stillson's.....55¢	
Well Buckets, Galvanized	Galvanized Wire Netting.....75¢@10¢@5@30%	Wire Cloth and Netting—	Wrought Goods—
See Pails, Galvanized.	Painted Screen Cloth per 100 ft.....31¢@40@.....	Galvanized Wire Netting.....75¢@10¢@5@30%	Staples, Hooks, &c., list March 17 '98.....30¢@20@55%
Wheels Well—	Wire Barb—See Trade Report.	Wire Cloth and Netting—	Yokes, Neck—
8-in., \$1 75@2 00; 10-in., \$2.25@2 60; 12-in., \$2.75@3 25; 14-in., \$4.00@4 50	Wire Rope—See Rope, Wire.	Galvanized Wire Netting.....75¢@10¢@5@30%	Covert Saddlery Works Trimme 1.60&5¢ Covert Saddlery Works, Neck Yoke Centers.....70¢
Wire Goods—	Wrenches—	Wire Cloth and Netting—	Yokes, Ox, and Ox Bows—
Brt. and Ann., 6 to 9. 65¢@7½@5¢@10¢ Brt. and Ann., 10 to 18....70@70¢@5¢ Brt. and Ann., 19 to 26.....72½¢@7½¢@10¢@10%	Agricultural.....75@.....% Baxter's S.....60¢@10¢@10%	Galvanized Wire Netting.....75¢@10¢@5@30%	Fort Madison's Farmers & Freighters'.. list net
Brt. and Ann., 27 to 36.....75@75¢@10¢@10%	Coes' Genuine.....48¢@10¢@5¢@5¢@3¢ Coes' Mechanics' 33½¢@10¢@10¢@5¢@3¢	Wire Cloth and Netting—	Zinc—
Cop'd and Galv., 6 to 9. 62½¢@6½¢@5¢@5¢ Cop'd and Galv., 10 to 18....55@6½¢@2½¢@5¢ Tinned, 6 to 14.....70@70¢@5¢@5¢ Tinned, 15 to 18.....67½¢@6½¢@5¢@5¢	Acme.....60¢@10¢@10¢@10¢@10%	Brass, list Feb. 26, '96.....15%	Sheet.....lb. 7½¢@3¢
Annealed Wire on Spools.....60¢@10@80¢@10¢@5¢ Annealed Wire on Spools.....60¢@10@80¢@10¢@5¢	Alken's Pocket (Bright).....\$2.00@3.20 Alligator.....60¢@10@10¢@10%		

## PAINTS, OILS AND COLORS.—Wholesale Prices.

## White Lead, Zinc, &amp;c.

Lead, Foreign white, in Oil.....7¾@ 9½%	Lead, Red, bbls. ½ bbls. and kegs:
Lead, American White, in Oil:	Lots 500 lb or over.....@ 6½
Lots of 500 lb or over.....@ 6½	Lots less than 500 lb.....@ 7
Lots less than 500 lb.....@ 7	Litharge, bbls. ½ bbls. and kegs:
Lead, White, in oil, 25 lb tin pails, add to keg price.....@ 14	Lots 500 lb or over.....@ 6½
Lead, White, in oil, 12½ lb tin pails, add to keg price.....@ 14	Lots less than 500 lb.....@ 7
Lead, White, in oil, 1 to 5 lb as- sorted tins, add to keg price.....@ 14	Ocher, French Washed.....14½¢@ 5¢
Lead, White, Dry in bbls.....@ 5½	Ocher, Dutch Washed.....4½¢@ 5¢
Lead, American Terms: On lots of 500 lbs. and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.	Ocher, American, ½ ton \$10.00@15.00
Zinc, American, dry.....\$ 2 4½@ 5½	Orange Mineral, English, ½ ton 9½¢@12
Zinc, Paris, Red Seal.....@ 8½	Orange Mineral, French.....11½¢@11½
Zinc, Paris, Green Seal.....@ 9½	Orange Mineral, German.....9½¢@12
Zinc, Antwerp, Red Seal.....\$ 7½	Red, Indian, English.....8½¢@ 8½
Zinc, Antwerp, Green seal.....\$ 8½	Red, Indian, American.....4½¢@ 8½
Zinc, V. M. in Poppy Oil, G. Seal lots 1 ton and over.....@ 11½	Red, Turkey, Eng. h.....5@ 10
lots less than 1 ton.....@ 12½	Red, Tuscan, English.....7@ 10
Zinc, V. M. in Poppy Oil, Red Seal, lots of 1 ton and over.....@ 10½	Red, Venetian, Amer. \$ 10.00.....8@ 11½
lots less than 1 ton.....@ 11½	Red, Venetian, English, ½ ton 14½¢@ 3½
DISCOUNTS—V. M. F. Zinc, Dis- counts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls., 4%. No discount allowed on less than 10 bbl. lots.	Sienna, Italian, Burnt and Powdered.....\$ 14½¢@ 6

## Dry Colors.

Black, Carbon.....\$ 6 @20	Talc, French.....\$ 100 lb \$1.25@1.50
Black, Drop, Amer.....2½¢@ 4	Talc, American.....90@ 1.10
Black, Drop, Eng.....5@ 10	Terra Alba, French, ½ ton .. 80@ 1.00
Black, Ivory.....9@ 9½	Terra Alba, English.....85@ 1.00
Lamp, Com.....3@ 5	Terra Alba, American No. 1.....45@ 70
Blue, Celestial.....\$ 5½@ 8	Terra Alba, American No. 2.....45@ 50
Blue, Chinese.....35@ 40	Umber, Turkey, Bkt. & Pow. ½ ton 2½¢@ 3½
Blue, Prussian.....30@ 38	Umber, Turkey, Raw & Powd. 2½¢@ 3½
Blue, Ultramarine.....7@ 35	Umber, But. Amer.....14½¢@ 2
Brown, Spanish.....14½@ 1	Umber, Raw, Amer.....14½¢@ 2
Brown, Vandyke, Amer.....1¾@ 2½	Yellow, Chrome.....10½@ 25
Brown, Vandyke, Foreign.....2½@ 3½	Vermilion, American Lead.....10@ 25
Carmine, No. 40.....\$ 2 15¢@ 2½	Vermilion, Quicksilver, bulk .. 66½
Green, Chrome, ordinary.....5@ 6	Vermilion, Quicksilver, bags.....67@ 70
Green, Chrome, pure.....19@ 25	Vermilion, English, Import.....71@ 72

## Colors In Oil.

Black' Lampblack.....10@ 14	Black' Lampblack.....10@ 14
Blue, Chinese.....35@ 40	Blue, Chinese.....35@ 40
Blue, Prussian.....32@ 38	Blue, Prussian.....32@ 38
Blue, Ultramarine.....13@ 16	Blue, Ultramarine.....13@ 16

Black' Lampblack.....10@ 14	Black' Lampblack.....10@ 14
Blue, Chinese.....35@ 40	Blue, Chinese.....35@ 40
Blue, Prussian.....32@ 38	Blue, Prussian.....32@ 38
Blue, Ultramarine.....13@ 16	Blue, Ultramarine.....13@ 16

## Lead, Red, bbls. ½ bbls. and kegs:

Lots 500 lb or over.....@ 6½	Brown, Vandyke.....10@ 13
Lots less than 500 lb.....@ 7	Green, Chrome.....8@ 14
Litharge, bbls. ½ bbls. and kegs:	Green, Paris.....10@ 14
Lots 500 lb or over.....@ 6½	Sienna, Raw.....10@ 13
Lots less than 500 lb.....@ 7	Sienna, Burnt.....10@ 13

Lots 500 lb or over.....@ 6½	Umber, Raw.....9@ 13
Lots less than 500 lb.....@ 7	Ocher, French Washed.....14½¢@ 5¢
Ocher, Dutch Washed.....4½¢@ 5¢	Ocher, American, ½ ton \$10.00@15.00
Ocher, American.....\$ 10.00@15.00	Orange Mineral, English, ½ ton 9½¢@12
Orange Mineral, French.....11½¢@11½	Orange Mineral, German.....9½¢@12

Orange Mineral, German.....9½¢@12	Red, Indian, English.....8½¢@ 8½
Red, Indian, American.....4½¢@ 8½	Red, Turkey, Eng. h.....5@ 10
Red, Turkey, Eng. h.....5@ 10	Red, Tuscan, English.....7@ 10
Red, Tuscan, English.....7@ 10	Red, Venetian, Amer. \$ 10.00.....8@ 11½
Red, Venetian, English, ½ ton 14½¢@ 3½	Red, Venetian, English, ½ ton 14½¢@ 3½

Red, Venetian, English, ½ ton 14½¢@ 3½	Sienna, Italian, Burnt and Powdered.....\$ 14½¢@ 6
Sienna, Italian, Burnt and Powdered.....\$ 14½¢@ 6	Talc, French.....14½¢@ 5¢
Talc, French.....14½¢@ 5¢	Talc, American.....90@ 1.10
Talc, American.....90@ 1.10	Terra Alba, French, ½ ton .. 80@ 1.00
Terra Alba, French, ½ ton .. 80@ 1.00	Terra Alba, English.....85@ 1.00

Terra Alba, English.....85@ 1.00	Terra Alba, American No. 1.....45@ 70
Terra Alba, American No. 1.....45@ 70	Terra Alba, American No. 2.....45@ 50
Terra Alba, American No. 2.....45@ 50	Umber, Turkey, Bkt. & Pow. ½ ton 2½¢@ 3½
Umber, Turkey, Bkt. & Pow. ½ ton 2½¢@ 3½	Umber, Turkey, Raw & Powd. 2½¢@ 3½
Umber, Turkey, Raw & Powd. 2½¢@ 3½	Umber, But. Amer.....14½¢@ 2

Umber, But. Amer.....14½¢@ 2	Umber, Raw, Amer.....14½¢@ 2
Yellow, Chrome.....10½@ 25	Yellow, Chrome.....10½@ 25
Vermilion, American Lead.....10@ 25	Vermilion, Quicksilver, bulk .. 66½
Vermilion, Quicksilver, bulk .. 66½	Vermilion, Quicksilver, bags .. 67@ 70
Vermilion, Quicksilver, bags .. 67@ 70	Vermilion, English, Import .. 71@ 72

Vermilion, English, Import .. 71@ 72	Vermilion Chinese.....80@ 60
Vermilion Chinese.....80@ 60	Linseed, City, raw.....\$ 52½¢@ 5½
Linseed, City, raw.....\$ 52½¢@ 5½	Linseed, City, boiled.....52@ 5½
Linseed, City, boiled.....52@ 5½	Linseed, Sta. & West'n, raw 17@ 48
Linseed, Sta. & West'n, raw 17@ 48	











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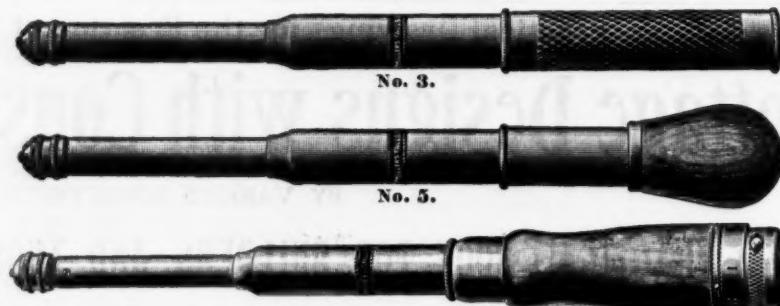
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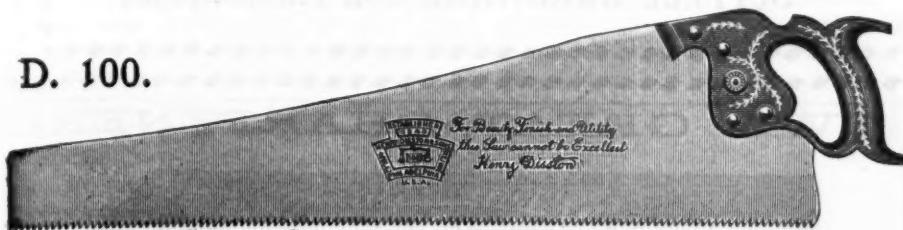
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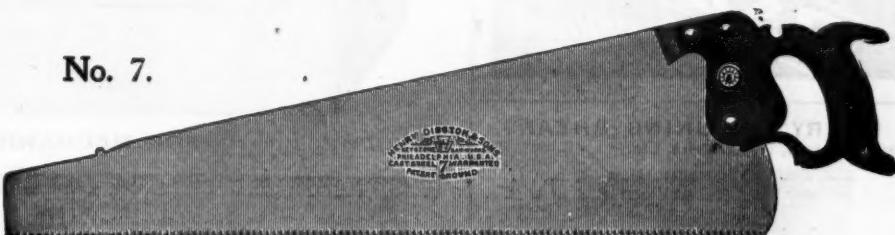
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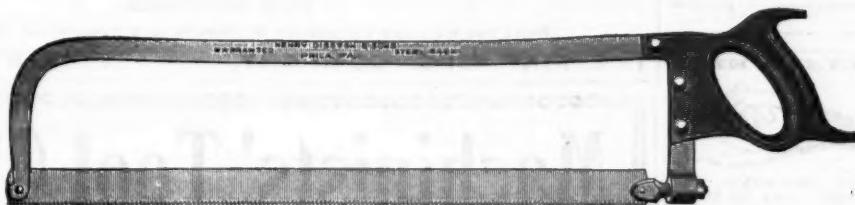
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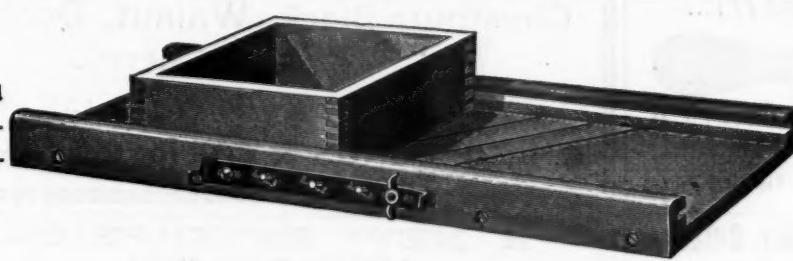
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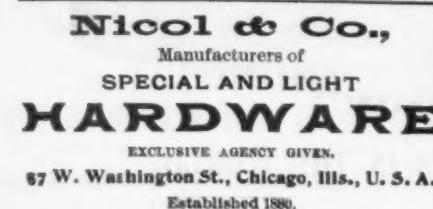
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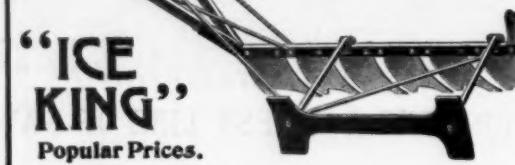
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